

Notice



- CORRECTION
- PRODUCTION CHANGE
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FILE NO.

Please add this notice to the Service Manual listed below.

REVISION 07

Category : <u> COLOR TELEVISION </u>	Date: <u> MAY / 15 / 2002 </u>
Model: <u> DS19500 </u>	Effective from : Chassis No. <u> 19500-07 </u> ←
Destination: <u> U.S.A. / CANADA </u>	REF : No. <u> SM5110088 </u>

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. **If the Service Manual Chassis No. does not match the unit's**, additional Service Literature is required. This chassis is similar to Chassis No. 19500-00, however, all Service Information is given in this Notice for Chassis No. 19500-07 used in Model DS19500.

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Specifications

Power Rating	120V, 60Hz 58W (Avg), 1.4A (Max)
Antenna Input Impedance	75Ω UHF/VHF/CATV
Receiving Channel	2 - 13 (VHF), 14 - 69 (UHF), 01, 14-94, 95-125 (CATV)
Remote Ready	24 Key Remote Control
Sound Output	1.0 W/CH
Intermediate Frequency	
Picture IF Carrier	45.75MHz
Sound IF Carrier	41.25MHz
Color Sub Carrier	42.17MHz
Picture Tube	A48KRD82X(DT)
Semiconductors	
Integrated Circuits	8
Transistors	23
Except within Tuner and RC Pre-Amp.	
Cabinet Dimensions	
Width	488mm
Height	452mm
Depth	468mm

SAFETY INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: The chassis of this receiver has a floating ground with the potential of one half the AC line voltage in respect to earth ground. Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

The following precautions must be observed:

1. An isolation transformer must be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Comply with all caution and safety-related notes provided on the side of the cabinet, inside the cabinet, on the chassis, and the picture tube.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers, shields and barriers.

DO NOT OPERATE THIS TELEVISION RECEIVER WITHOUT THE PROTECTIVE SHIELD IN POSITION AND PROPERLY SECURED.

4. Before replacing the back cover of the set, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.
Before returning any television to the customer, the service technician must perform the following safety checks to be sure that the unit is completely safe to operate without danger of electrical shock.

ANTENNA COLD CHECK

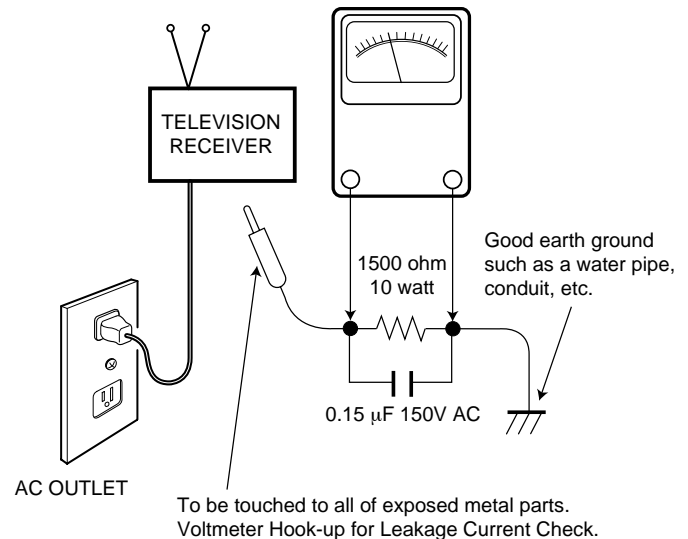
Remove AC plug from the 120 VAC outlet and place a jumper across the two blades. Connect one lead of an ohmmeter to the jumpered AC plug, and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action.

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120 VAC outlet. (Do not use an isolation transformer for this check.) Use an AC voltmeter, that has 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 μ F 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screw heads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The AC voltage should not exceed 750 mV. A reading exceeding 750 mV indicates that a dangerous potential exists. The fault must be located and corrected. Repeat the above test with the receiver power plug reversed.

NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING THE NECESSARY CORRECTIVE ACTION.

READING SHOULD NOT EXCEED 750 mV.
AC VOLTMETER
(5000 ohms per volt or more sensitivity)



X-RADIATION PRECAUTION

The primary source of X-RADIATION in solid-state receivers is the picture tube. The picture tube is specially constructed to limit X-Ray emission. For continued X-RADIATION protection, the replacement tube must be the same type as the original (including the suffix letter in the part numbers). Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If the high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take the necessary corrective action. Carefully follow the instructions for the +B Voltage Check and the High Voltage Check to maintain the high voltage within the specified limits.

HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from the picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the HIGH VOLTAGE HOLD-DOWN TEST in service adjustments.

PRODUCT SAFETY NOTICE

When replacing components in a receiver, always keep in mind the necessary product safety precautions. Pay special attention to the replacement of components marked with a star (★) in the parts list and in the schematic diagrams. To ensure safe product operation, it is necessary to replace those components with the exact same PARTS.

SERVICE ADJUSTMENTS

GENERAL

This set has an On-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments.

IC802 (EEPROM) REPLACEMENT

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basic TV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See pages 4 – 6 for detailed information.)

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu NO. 23 POS (Pre Over SW), NO. 28 PRE (Preshoot Adj), NO. 37 AF (Auto Flesh), NO. 54 SCO (Sub Color), NO. 55 STI (Sub Tint), NO. 57 OPT (SA Option), and NO. 59 HR (OSD Position) should be set up for proper TV operation before attempting the service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select NO. 23 POS (Preshoot Overshoot Switch) with ▲ or ▼ key. Adjust the data with + or – key for 1.
4. Select NO. 28 PRE (Preshoot Adj) with ▲ or ▼ key. Adjust the data with + or – key for 2.
5. Select NO. 37 AF (Auto Flesh) with ▲ or ▼ key. Adjust the data with + or – key for 1.
6. Select NO. 54 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 10.
7. Select NO. 55 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 22.
8. Select NO. 57 OPT (SA Option) with ▲ or ▼ key. Adjust the data with + or – key for 100.
9. Select NO. 59 HR (OSD Position) with ▲ or ▼ key. Adjust the data with + or – key for 24.
10. Press the MENU key to turn off the Service Menu display.

ON-SCREEN SERVICE MENU SYSTEM

1. Enter the Service Menu:

- While pressing the MENU key, reconnect the AC power cord. The Service Menu Display will now appear. (See Figure 1.)

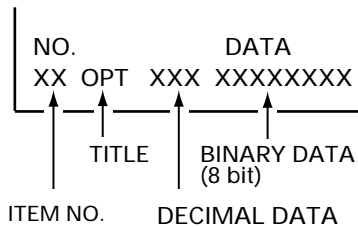


Figure 1. Service Menu Display

2. Service Adjustments:

- Press the ▲ or ▼ key to select the desired service menu you want to adjust. (See page 4 for On-screen Service Menu.)
- Use the + or – key to adjust the data.

3. Exit from the Service Menu:

- Press the MENU key to turn off the Service Menu display.

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
01	HFR	29	29	0~63	Horizontal Frequency
02	AFC	0	0	0, 1	AFC Gain & Gate
03	HP	15	15	0~31	Horizontal Phase (Horizontal Centering)
04	VS	64	64	0~127	Vertical Size
05	VPO	5	5	0~63	Vertical Position
06	VSP	0	0	0, 1	Vertical Set Up (Sync Sensitivity)
07	VLN	18	18	0~31	Vertical Linearity
08	CRS	0	0	0~3	Cross B/W
09	GRY	1	1	0, 1	Gray Mode
10	VSC	8	8	0~31	Vertical S Correction
11	HBR	3	3	0~7	H BLK R
12	HBL	4	4	0~7	H BLK L
13	CDM	0	0	0, 1	C D Mode
14	VC	7	7	0~7	Vertical Compression
15	RB	0	0	0~255	Red Bias
16	GB	0	0	0~255	Green Bias
17	BB	0	0	0~255	Blue Bias
18	RD	64	64	0~127	Red Drive
19	GD	8	8	0~15	Green Drive
20	BD	64	64	0~127	Blue Drive
21	SBI	48	48	0~127	Sub Bias
22	OSD	3	3	0~3	OSD Contrast
23	POS	0	1*	0, 1	Pre/Over SW
24	FLS	1	1	0~7	Filter System
25	CKO	3	3	0~7	Color Killer Operation
26	GYA	0	0	0, 1	G-Y Angle
27	CRG	2	2	0~3	Coring Gain
28	PRE	1	2*	0~3	Pre Shoot Adjust
29	WP	1	1	0, 1	White Peak Limiter
30	FSW	0	0	0, 1	FBP Blanking Switch
31	VBL	0	0	0, 1	Vertical Blanking Switch
32	BSG	2	2	0~3	Black Str Gain
33	BSS	1	1	0~3	Black Str Start
34	DCR	1	1	0~3	DC Reset
35	YGM	1	1	0~3	Y Gamma
36	CBP	0	0	0, 1	C Bypass
37	AF	0	1*	0, 1	Auto Flesh
38	BAT	4	4	0~7	Bright ABL Threshold
39	MSD	0	0	0, 1	Mid Stop Def
40	ABL	0	0	0, 1	Auto Bright Limit
41	RYA	2	2	0~15	R-Y/B-Y Angle
42	RAD	15	15	0~63	RF AGC Delay
43	IAS	0	0	0, 1	IF AGC
44	FMM	0	0	0, 1	FM Mute
45	FL	15	15	0~31	FM Level

Table 1. ON-SCREEN SERVICE MENU (Continued)

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
46	VL	4	4	0~7	Video Level
47	EWD	39	39	0~63	EW DC
48	EWA	30	30	0~63	EW Amp
49	EWT	34	34	0~63	EW Tilt
50	EWP	7	7	0~7	EW Corner Top
51	EWB	8	8		EW Corner Bottom
52	HSC	7	7		Horizontal Size Comp
53	SB	32	32	0~63	Sub Bright
54	SCO	7	10*	0~31	Sub Color
55	STI	20	22*	0~31	Sub Tint
56	SSH	12	12	0~31	Sub Sharpness
57	OPT	0	100*	0~255	Option (See Note 1 page 6.)
58	OP2	0	0	0~255	Option 2 (See Note 2 page 6.)
59	HR	27	24*	0~63	OSD Horizontal Position
60	ATT	7	7	0~63	Input Level
61	WDB	32	32	0~63	Wideband
62	SPC	32	32	0~63	Spectral
63	SBO	5	5	0~255	Sub Bright Offset
64	PCO	40	40	0~63	PIP Color
65	PTI	40	40	0~63	PIP Tint
66	PUV	24	24	0~63	PIP Top Position
67	PDV	147	147	0~255	PIP Bottom Position
68	PLH	10	10	0~63	PIP Left Position
69	PRH	101	101	0~255	PIP Right Position
70	PCN	42	42	0~63	PIP Y Level
71	PBS	15	15	0~63	PIP BGP Phase
72	DRV	64	64	0~127	Red Drive Adjustment (See Note 3 page 6.)
		64	64	0~127	Blue Drive Adjustment (See Note 3 page 6.)
73	-	0	0	0~255	Red Bias Adjustment (See Note 4 page 6.)
	-	0	0	0~255	Green Bias Adjustment (See Note 4 page 6.)
	-	0	0	0~255	Blue Bias Adjustment (See Note 4 page 6.)

SERVICE ADJUSTMENTS (Continued)

PROGRAM CODES

The microprocessor used in this model is a multi-purpose type and is used in several different models. To ensure proper operation and the correct features for your particular model, the Program Codes must be correct.

Note 1. Option Data 1 (NO. 57 OPT) should be decimal 100 (01100100 binary). See page 3 INITIAL DATA SETUP, step 9, for set up procedure. If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0, 1	TV HOTEL MONITOR	00: TV 01: HOTEL 10: MONITOR 11: INHIBITED (=TV)	
2	VIDEO INPUT	NONE	YES
3, 4	CLOCK	NOT USED	
5	STEREO/MONO	MONO	STEREO
6, 7	SURROUND	00: NONE 01: YES 10: NOT USED 11: NOT USED	

Note 2. Option Data 2 (NO. 58 OP2) should be decimal 0 (00000000 binary). See page 3 INITIAL DATA SETUP, step 10, for set up procedure. If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0	V-GUIDE	YES	NONE
1	COLOR ENHANCER	NOT USED	
2	INITIAL CHANNEL	NOT USED	
3	NOT USED	NOT USED	
4	PIP	NOT USED	
5	AV1/AV1, AV2	AV1	AV1, AV2
6	TONE/BASS, TREBLE	NOT USED	
7	GAME KEY	NONE	YES

DRIVE / BIAS ADJUSTMENTS

Note 3. Red/Blue Drive Adjustments in Service Menu NO. 72 DRV: Adjust Red and Blue Drive Levels alternately with 1, 3, 7, and 9 keys on the remote control. (See Figure 2.) The Drive Level adjustment data will be written in the Service Menu No. 18 and 20 automatically.

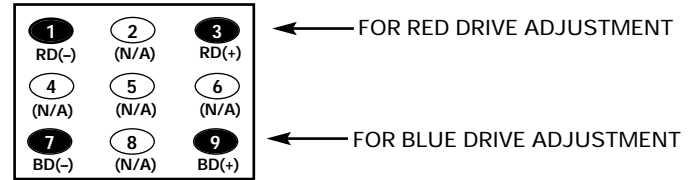


Figure 2.

Note 4. Red/Green/Blue Bias Adjustments in Service Menu NO. 73: Adjust each Bias Level with 1, 3, 4, 6, 7, or 9 key on the remote control. (See Figure 3.) The Bias Level adjustment data will be written in the Service Menu No. 15 ~ 17 automatically.



Figure 3.

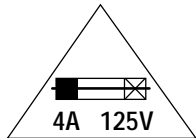
ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF reception. A 75 ohm terminal is provided for UHF and VHF receptions. When connecting a CATV antenna system, connect the 75 ohm coaxial cable directly to the 75 ohm terminal. For 300 ohm VHF antenna, use an adapter (not included with the TV set).

CIRCUIT PROTECTION

Fuse F601 (4A) is included in the AC line. This fuse must be replaced with the proper fuse (see Parts List).

CAUTION



FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

ATTENTION : POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D' INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.

+B VOLTAGE CHECK

Connect Voltmeter + lead to TJ1 135V and - lead to ground (TE7). Connect receiver to AC 120V line. Tune receiver to an active channel. Reset the picture controls to the FACTORY PRESET levels (press remote control RESET key twice). Voltage must measure between +133.0V and +137.0V. If the voltage is out of this range, the power circuit must be checked. No +B adjustment is provided on this chassis.

HORIZONTAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the horizontal center of TV screen. If picture is not centered horizontally, perform steps 3 - 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 03 HP (Horizontal Phase) with ▲ or ▼ key.
6. Adjust the data with + or - key for horizontal center. To turn off the Service Menu display, press the MENU key.

VERTICAL SIZE ADJUSTMENT

1. Tune receiver to an active channel.
2. Check the vertical size of the picture. If the vertical size is too large or small, perform steps 3 - 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 04 VS (Vertical Size) with ▲ or ▼ key.
6. Adjust the data with + or - key for full scan. To turn off the Service Menu display, press the MENU key.

VERTICAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the center of TV screen. If picture center is too low, change resistor R513 from 1K ohm 1/2W to 470 ohm 1W. If picture center is too high, remove resistor R513 (1K ohm, 1/2W).

VCO ADJUSTMENT

Note: VCO must be adjusted after IC101 (Signal Processor), IC802 (EEPROM) or T151 (VCO Coil) is replaced.

1. Tune receiver to an active channel.
2. Set the picture controls to the Sports level.
3. Connect digital voltmeter + lead to pin 58 of IC101 and - lead to ground (TE 7).
4. Confirm a reading of 3.6 ± 0.2 VDC.
5. If voltage is out of specifications adjust T151 for 3.6 ± 0.2 VDC.

RF AGC ADJUSTMENT

1. Tune receiver to strongest VHF station in your area.
2. Set contrast and brightness controls for maximum.
3. Turn off the receiver and disconnect the AC power cord (120V AC line).
4. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 42 RAD (RF AGC Delay) with ▲ or ▼ key.
6. Adjust the data with + or - key in the direction which causes snow to appear; then in the opposite direction until the snow just disappears.
7. To turn off the Service Menu display, press the MENU key.

VIDEO LEVEL

1. Connect color-bar generator to antenna terminals.
2. Turn off the receiver and disconnect the AC power cord (AC 120V line).
3. Connect oscilloscope to TP16 (Q202 emitter) and ground.
4. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
5. Select NO. 46 VL (Video Level) with the ▲ or ▼ key.
6. Adjust the + or - key for an oscilloscope reading of 1.0 ± 0.1 VP-P at TP16. Press the MENU key to turn off the Service Menu display.

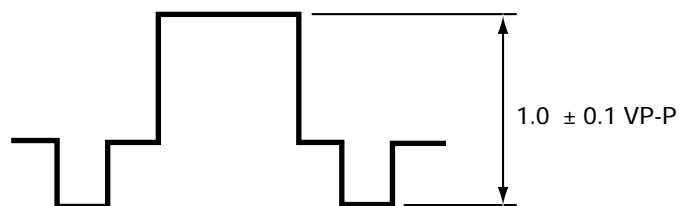


Figure 4.

SERVICE ADJUSTMENTS (Continued)

GRAYSCALE ADJUSTMENT

1. Set the picture controls to the Sports levels or Reset (use MENU key and ▲ or ▼ key or RESET key).
2. Turn off the receiver and disconnect the AC power cord (120V AC line).
3. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
4. Select NO. 15 RB (Red Bias), NO. 16 GB (Green Bias), and NO. 17 BB (Blue Bias) with ▲ or ▼ key and set each data to 0 with + or – key.
5. Select NO. 18 RD (Red Drive) and NO. 20 BD (Blue Drive) with ▲ or ▼ key and set each data to 64 with + or – key.
6. Set NO. 19 GD (Green Drive Reduction) data to 8, NO. 53 SB (Sub Brightness) data to 32, NO. 54 SCO (Sub Color) data to 10, NO. 55 STI (Sub-Tint) to 22, and NO. 56 SSH (Sub Sharpness) data to 12 with ▲ or ▼, and + or – keys.
7. Turn Screen Control (T402) to minimum (fully counter-clockwise).
8. Select the Service Menu NO. 73 (Bias Adjustments) with ▲ or ▼ key.
9. Advance Screen Control (T402) clockwise to obtain just visible one color line. If line does not appear, place this control to maximum (fully clockwise).
10. Raise each Bias Level with 3, 6, and 9 keys to obtain just visible white line. (See Figure 5.)

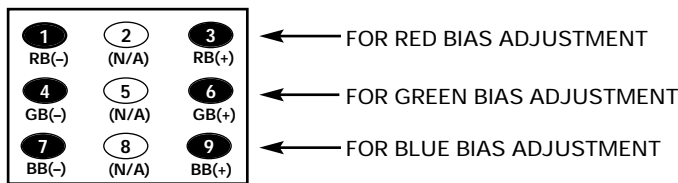


Figure 5. Remote Control Number keys' functions in Service Menu NO. 73

11. Select the Service Menu NO. 72 DRV (Drive Adjustments) with ▲ or ▼ key.
12. Adjust Red and Blue Drive Levels alternately with 1, 3, 7, or 9 key to produce normal black and white picture in highlight areas. (See Figure 6.)



Figure 6. Remote Control Number keys' functions in Service Menu NO. 72 DRV

13. Check for proper grayscale at all brightness levels. To turn off the Service Menu display, press the MENU key.

Note: If Grayscale Adjustment is made after picture tube replacement, check Brightness Level Adjustment.

FOCUS ADJUSTMENT

Adjust focus control (T402) for well defined scanning lines.

BRIGHTNESS LEVEL ADJUSTMENT

Note: Grayscale, RF-AGC, Video Level, and High Voltage Check must be adjusted before attempting Brightness Level Adjustment.

1. Connect a color-bar generator to the antenna terminals.
2. Switch the generator to the crosshatch pattern.
3. Reset the picture controls to the Sports levels.
4. Connect voltmeter (high impedance) + lead to terminal TP51 and – lead to terminal TP50 on main board. Set voltmeter for 1.5V ~ 3V range.
5. Turn off the receiver and disconnect the AC power cord.
6. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
7. Select NO. 53 SB (Sub Brightness) with ▲ or ▼ key.
8. Adjust the data with + or – key for 820mVDC.
9. Press the MENU key to turn off the Service Menu display.
10. Check brightness level on every active channel, readjust (repeat steps 5 ~ 9), if necessary.

Note: Do not set to excessive brightness level, otherwise the contrast level will be suppressed.

HIGH VOLTAGE HOLD-DOWN TEST

Every time the receiver is serviced, the HIGH VOLTAGE HOLD-DOWN circuit must be tested for proper operation by following these steps:

1. Connect receiver to 120V AC line. Tune receiver to active channel. Reset the picture controls to the Sports levels.
2. Check that the voltage measured between TP7 and TE7 (ground side) is within 16.5 VDC to 21 VDC. If the voltage is out of this range, the Hold-Down Circuit must be checked.
3. Connect a DC Voltage supply to TP7 and TE7 through a 100 ohm 1/4W resistor. Adjust the DC voltage to 23 VDC. The receiver should shutdown, losing raster and sound. Then the receiver should turn off automatically. This reaction indicates that the Hold-Down circuit is functioning properly. If the receiver does not shutdown, a malfunction is indicated and its cause **must** be found and corrected.
4. To obtain picture again, remove the DC Supply and wait a few minutes. Now turn on the receiver.

HIGH VOLTAGE CHECK

Note: +B (+135V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.

1. Connect high voltage voltmeter – lead to ground, and connect + lead to anode of picture tube.
2. Tune receiver to an active channel and confirm TV is operating properly.
3. Eliminate the beam current by adjusting the contrast and brightness controls to minimum.
4. Confirm high voltage is within 25.0 KV and 27.0 KV. If reading is not within range, check horizontal circuit.

No high voltage adjustment is provided on this chassis.

SOUND ADJUSTMENT

1. Connect a color-bar generator to the antenna terminals with audio signal of 1KHz at 100% modulation.
2. Set the picture controls to the Sports levels
3. Connect oscilloscope + lead to TP21 (base Q135) and – lead to ground.
4. Turn off the receiver and disconnect the AC power cord (AC 120V line).
5. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
6. Select NO. 45 FL (FM Level) with the ▲ or ▼ key.
7. Adjust the data with the + or – key for an oscilloscope reading of $0.693 \pm 10\%$ VP-P at TP21.
8. Press the MENU key to turn off the Service Menu display and disconnect the oscilloscope from the chassis.

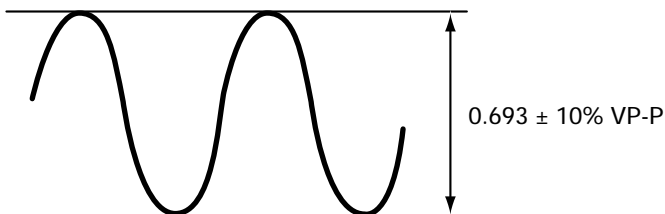


Figure 7.

MULTI-SOUND SECTION ADJUSTMENTS

Note: Multi-Sound Section must be adjusted after IC101 (Signal Processor), IC3401 (MTS Decoder), or IC802 (EEPROM) is replaced.

INPUT LEVEL ADJUSTMENT

1. Connect a signal to the antenna terminals with audio of 1 KHz 100% modulation.
2. Turn off the receiver and disconnect the AC power cord (AC 120V line).
3. Connect voltmeter (RMS) to TP317 and ground.
4. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
5. Select NO. 60 ATT (Attenuation) with the ▲ or ▼ key.
6. Adjust the + or – key for a voltmeter reading of 400 ± 20 mVrms at TP317.

SEPARATION ADJUSTMENT

7. Turn off the receiver and disconnect the AC power cord (AC 120V line).
8. Connect oscilloscope CH1 to TP317 and CH2 to TP318 and ground.
9. Connect an MTS TV/Stereo generator to antenna terminal.
10. While pressing the Menu key, reconnect the AC power cord. The Service Menu will now appear.
11. Select pilot, 300Hz audio frequency and Left modulating signal.
12. Select NO. 61 WDB (Wideband) with the ▲ or ▼ key.
13. Adjust the + or – key for minimum low frequencies at TP317. (See Figure 8.)
14. Select 4 KHz audio frequency and Right modulating signal.
15. Select NO. 62 SPC (Spectral) with the ▲ or ▼ key.
16. Adjust the + or – key for minimum high frequencies at TP318. (See Figure 8.)

Repeat adjustments (steps 11–16) until no further decreases in amplitude can be obtained. Press the MENU key to turn off the Service Menu display.

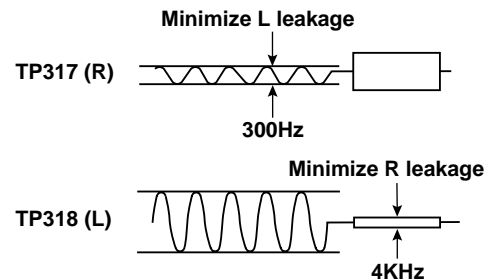


Figure 8. Separation Adjustments

PURITY AND CONVERGENCE ADJUSTMENTS

CAUTION: The Purity and Convergence adjustments have been made at the factory. Readjustments should be made only after the picture tube or deflection yoke is replaced. Follow the steps below for necessary readjustments.

PURITY ADJUSTMENTS

1. When replacing picture tube or deflection yoke, mount deflection yoke and purity and convergence magnets assembly properly. See Figure 1. Position the picture tube facing east or west. Demagnetize the picture tube and receiver using an external degaussing coil. Set receiver to Service Menu NO. 73 (no vertical sweep) while degaussing.
2. Place the yoke on tube neck fully forward against glass.
3. Place the CPM on the tube neck aligning the center of the purity magnet tabs over center of Focus Gap (G3 & G4). See Figure 2.
4. Connect a color-bar generator to the antenna terminal. Switch the generator to a white field. Move yoke backward on the neck until a uniform white field is obtained.
5. Allow 30 minutes warm up on a blank white field (high intensity grayscale).
Note: If white field cannot be obtained check Grayscale Adjustments on page 8.
6. Reset the picture controls to the Auto levels. Select a green raster, either with the signal generator or by adjusting the bias controls. If a signal generator is used for this step skip to Step 11. If the bias controls will be used go to step 7.
7. Adjust Service Menu NO. 15 RB (Red Bias), NO. 16 GB (Green Bias), and NO. 17 BB (Blue Bias) data each to 0.
8. Select Service Menu NO. 73 (no vertical sweep).
9. Adjust the Screen Control counterclockwise until the horizontal scan line is no longer visible.
10. Select Service Menu NO. 16 GB (Green Bias) and increase the data to produce a green raster. If retrace lines appear reduce screen control slightly.
11. Pull yoke back on tube neck to obtain three-color raster (blue, green and red).
12. Adjust the angle between the two purity magnet tabs to center the vertical green belt in the picture tube. Do not rotate tabs. See Figure 3.
13. Slowly slide the deflection yoke forward until a uniform green screen is obtained.
14. Check the purity of the red and blue screens for uniformity. Turn off other colors to check (use bias controls or use generator). If necessary, readjust the yoke position until all screens are pure.
15. If bias controls and screen control were used to set purity reset Grayscale and Bright Level. Refer to Grayscale Adjustment and Brightness Level Adjustment on page 8.
16. Confirm that the yoke is not tilted. Tighten the yoke mounting screw. Adjust convergence next.

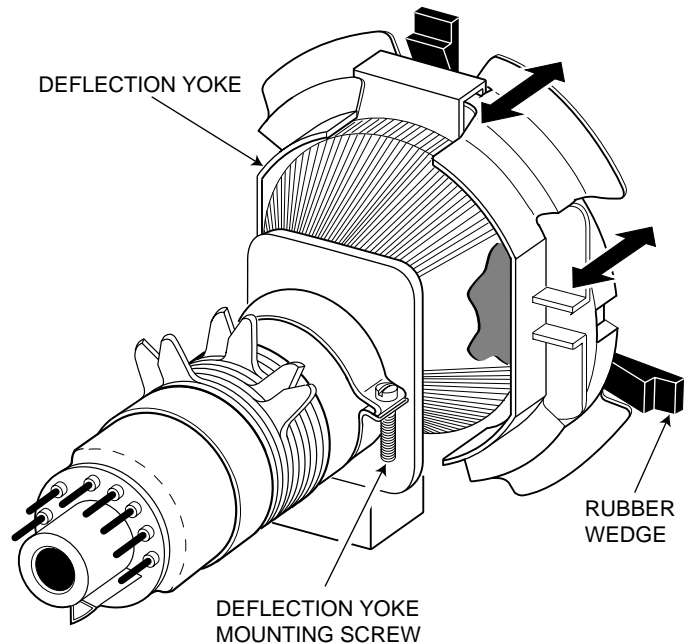


Figure 1. Deflection Yoke Movement

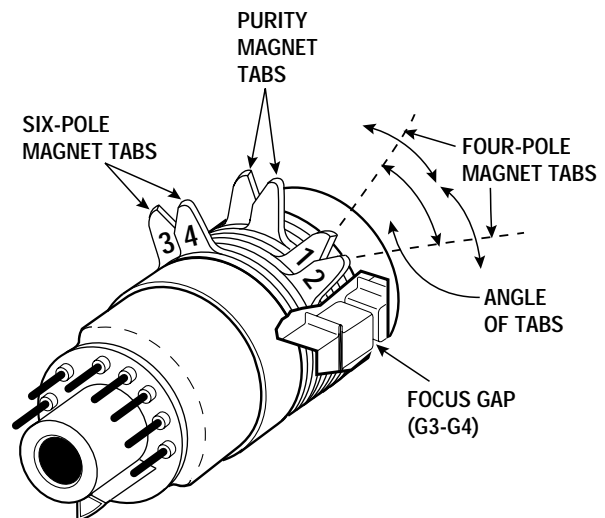


Figure 2. Purity and Convergence Magnets

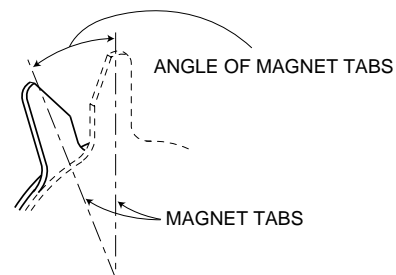


Figure 3. Adjusting Magnet

CONVERGENCE ADJUSTMENT

CENTER CONVERGENCE ADJUSTMENT

1. Connect a crosshatch generator to antenna terminals.
2. Set Contrast to low level to eliminate blooming. Reduce Brightness level to obtain black background if necessary.
3. Adjust the angle between the four-pole magnet tabs 1 and 2 (Figure 2), and superimpose the red and blue vertical lines in the center area of the picture screen. See Figure 4.
4. Keeping the tabs at the same angle, rotate them together to superimpose the blue and red horizontal lines in the center area of the picture screen. See Figure 4.
5. Adjust the six-pole magnet tabs 3 and 4 so the converged red/blue line is superimposed on the green line. This is the same procedure used in steps 3 and 4. See Figure 5.

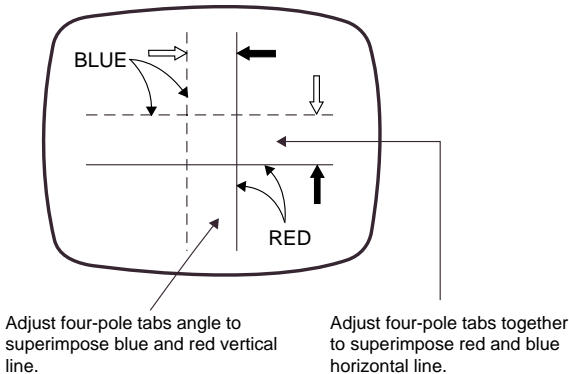


Figure 4. Blue and Red Line Movement

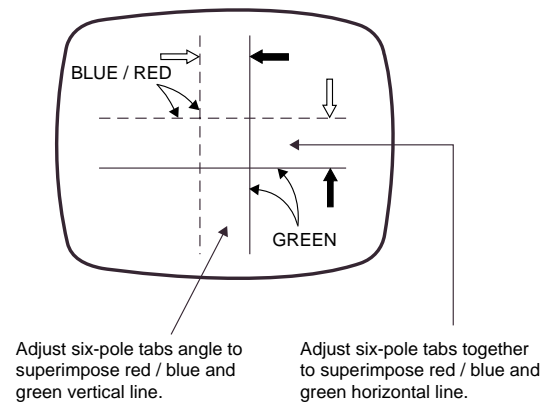


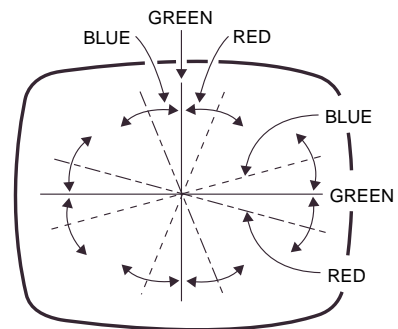
Figure 5. Blue/Red and Green Line Movement

OUTER AREA CONVERGENCE ADJUSTMENT

The outer area convergence is performed by positioning of the yoke as follows:

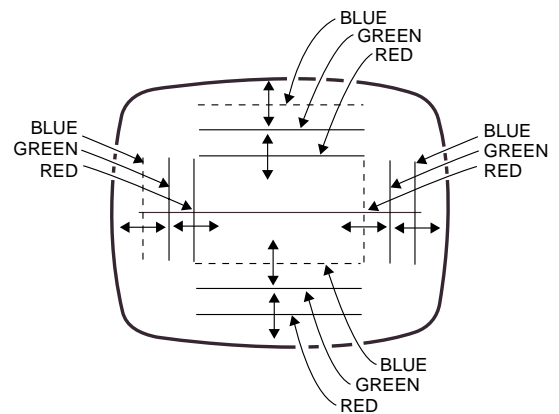
1. Move the top of the yoke toward or away from the picture tube. This movement will affect the vertical lines at the top and bottom and the horizontal lines at the sides. See Figure 6.
2. Check that splits at 12 o'clock and 6 o'clock positions are minimized, adjust yoke for best compromise. Secure with wedge at 12 o'clock position. See Figure 1.
3. Move the side of the yoke toward or away from the picture tube to converge the horizontal lines at the top and bottom and the vertical lines at the sides. See Figure 7.
4. Check that splits at 12 o'clock and 6 o'clock are minimized, adjust yoke for best compromise. Secure yoke position with the side wedges. See Figure 1.

Note: When re-using the rubber wedges, apply a small amount of silicone rubber adhesive or hot melt to each of the wedges.



Line movement when adjusting top of yoke in and out.

Figure 6. Top of Yoke Movement



Line movement when adjusting side of yoke in and out.

Figure 7. Side of Yoke Movement

SERVICE HINTS

POWER FAILURE DETECTOR

This unit is equipped with a Power Failure Detector function included in the CPU which checks for an abnormal condition in the chassis power supplies, including the power supply derived from the Horizontal Output Transformer.

If, while the power is on, a failure is caused by any of the following that results in a low voltage supply, the CPU will turn the unit off in 1.5 seconds to prevent unnecessary damage:

- Failure within the power supply circuits.
- A short circuit in the load side from the supply.
- Stoppage of the Horizontal Output Oscillator caused by the X-Radiation protection Hold-Down Circuit.

If, while the power is off, the power is switched on and any of these failures remains uncorrected, the CPU will shut off the power within 3 seconds.

Check the following if the unit is turned off by the power failure detector.

1. Disconnect the AC power cord (120V AC line) for at least 10 seconds.
2. Connect a DC Voltmeter to the following TEST POINTS.

TJ6	5V
D429 Cathode	5V

3. Press the Power key and check for the proper voltage supplies.
4. If any of these voltages is low, the power failure detector should turn the unit off within 3 seconds.
5. Check all circuits listed above.

Note: This unit is equipped with a Power Surge Protection feature included in the CPU. If power failure occurs three times within 15 minutes, the CPU will automatically stop functioning to help prevent secondary damage. (TV will not turn on by pressing the power key.) To reset the operating programs within the CPU, disconnect the AC power cord for at least 10 seconds.

MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

1. Refer to Figure 1, remove 5 screws.
2. Pull off cabinet back and remove.

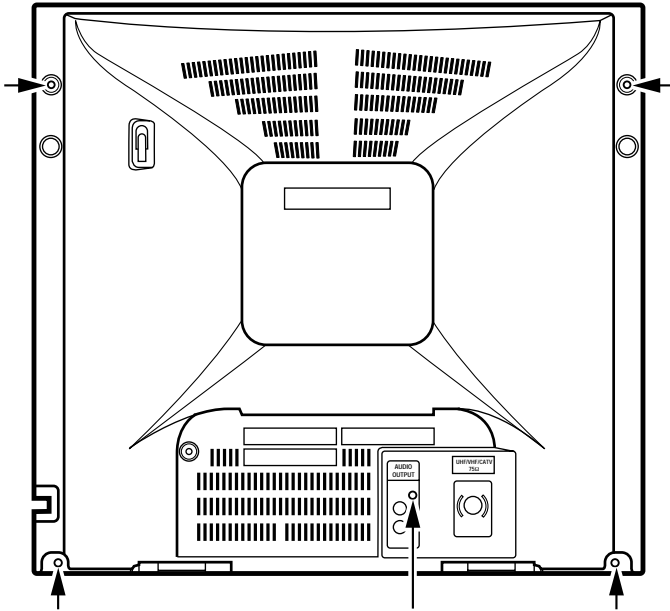


Figure 1. Cabinet Back Removal

CHASSIS REMOVAL

1. Remove cabinet back.
2. Discharge the picture tube anode (2nd anode lead) to the dag coating (picture tube grounding lead).
3. Disconnect degaussing coil socket (KD), picture tube socket, deflection yoke connector (KX), speaker connector (KSP), picture tube ground lead, and 2nd anode lead.
4. Remove chassis completely by sliding it straight back.

PICTURE TUBE REMOVAL

CAUTION: Do not disturb the deflection yoke or magnet assembly on the picture tube neck. Care must be taken to keep these assemblies intact, unless picture tube is being replaced. Discharge the picture tube to the coating before handling the tube.

1. Remove chassis, referring to Chassis Removal instructions.
2. Place cabinet's front face down on a soft surface.
3. Remove the screw on each corner of the picture tube and GENTLY lift the picture tube out of the cabinet.
4. Install a replacement picture tube in reverse order. Properly install the degaussing coil and picture tube grounding lead on the picture tube. See Figure 2.

Note: If Picture Tube is being replaced, mount the Degaussing Coil properly on the tube. See Figure 2.

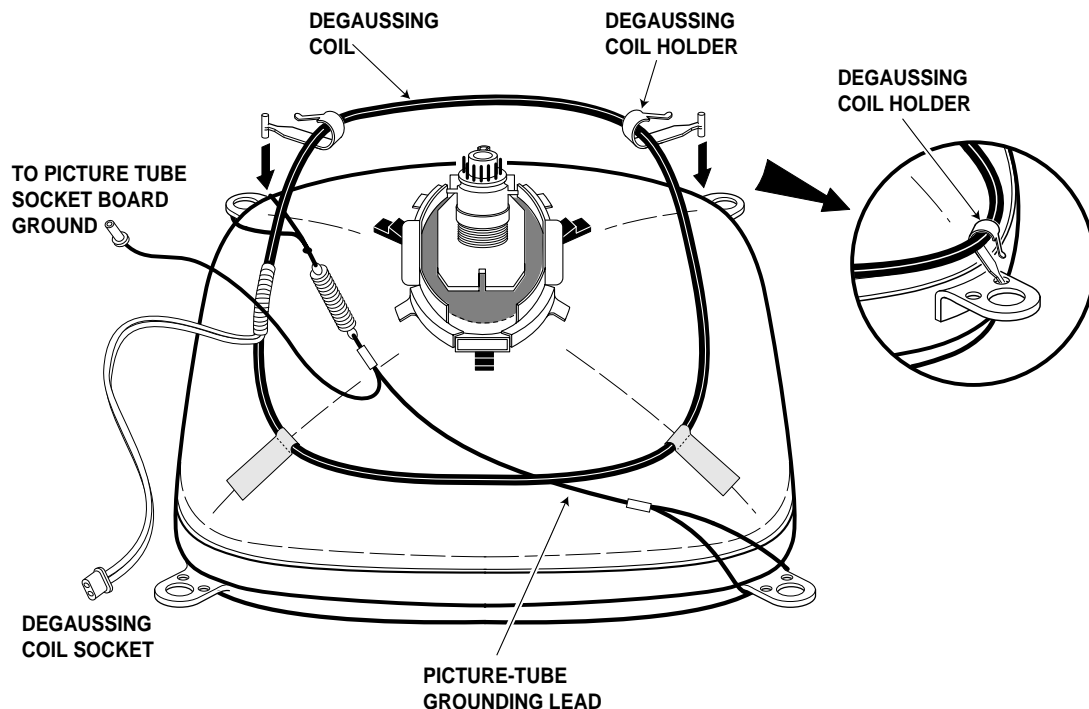


Figure 2. Picture Tube Removal

Schematic Location	Part No.	Description
C285	403 224 6108	CERAMIC 0.01U K 50V
C401	404 084 3306	ELECT 470U M 16V
C402	403 224 6108	CERAMIC 0.01U K 50V
C403	404 086 6800	POLYESTER 6800P J 63V
C405	404 084 6901	NP-ELECT 1U M 50V
C406	403 076 0200	CERAMIC 220P K 500V
C407	403 076 3607	CERAMIC 470P K 500V
C408	403 076 3102	CERAMIC 3900P K 500V
★ C411	404 077 4709	MT-POLYPRO 8000P H 1.5KV
	403 343 8304	MT-POLYPRO 8000P H 1.5KV
★ C417	404 081 2500	MT-POLYPRO 0.24U M 200V
	403 346 7027	MT-POLYPRO 0.24U J 250V
	403 372 6708	MT-POLYPRO 0.24U J 250V
C421	403 038 6301	ELECT 220U M 6.3V
C427	403 224 6108	CERAMIC 0.01U K 50V
C441	403 224 6108	CERAMIC 0.01U K 50V
C471	404 084 3306	ELECT 470U M 16V
C482	403 115 0802	ELECT 22U M 100V
C484	404 084 4204	ELECT 4.7U M 50V
C487	403 054 1502	ELECT 470U M 35V
C489	404 084 3009	ELECT 220U M 16V
C493	404 056 5307	NP-ELECT 2.2U M 100V
C497	404 084 2200	ELECT 100U M 6.3V
C502	403 053 2104	ELECT 220U M 35V
C503	404 085 4401	ELECT 10U M 25V
C504	404 084 2903	ELECT 1000U M 16V
C505	404 084 5706	MT-POLYEST 0.47UJ 63V
C506	404 084 5201	POLYESTER 0.018UK 63V
C508	403 235 0300	CERAMIC 56P J 50V
C509	404 084 5706	MT-POLYEST 0.47UJ 63V
★ C511	403 063 2309	POLYESTER 0.068U K 50V
	403 312 3002	POLYESTER 0.068U K 50V
C516	404 084 2705	ELECT 10U M 16V
★ C601	404 071 2404	MT-POLYEST 0.22U M 250V
	404 066 2204	MT-POLYEST 0.22U M 275V
	404 089 1703	MT-POLYEST 0.22U M 275V
★ C603	403 075 7101	CERAMIC 1000P K 500V
★ C604	403 075 7101	CERAMIC 1000P K 500V
★ C606	404 088 3104	CERAMIC 1000P M 250V
★ C608	403 222 1907	CERAMIC 2200P K 1K
	403 263 6305	CERAMIC 2200P K 1K
	403 232 0204	CERAMIC 2200P K 1K
★ C609	404 049 4706	ELECT 330U M 200V
	404 085 9000	ELECT 330U M 200V
C612	404 084 5102	POLYESTER 0.1UK 63V
C613	404 086 6503	POLYESTER 0.047U J 63V
C614	404 084 5003	POLYESTER 0.01UJ 63V
C625	403 266 4902	CERAMIC 1200P K 1K
	403 262 2308	CERAMIC 1200P K 1K
C626	403 042 4805	ELECT 1000U M 16V
C628	404 073 9005	ELECT 220U M 160V
C629	403 043 0202	ELECT 220U M 16V
★ C631	404 088 3104	CERAMIC 1000P M 250V
★ C632	404 088 3104	CERAMIC 1000P M 250V
C634	404 084 3207	ELECT 47U M 16V
C683	404 084 2804	ELECT 100U M 16V
C693	404 087 1200	ELECT 0.1U M 50V
C701	403 224 5705	CERAMIC 1000P K 50V
C711	403 357 9403	CERAMIC 820P J 50V
C721	403 357 9403	CERAMIC 820P J 50V

Schematic Location	Part No.	Description
★ C742	403 077 2807	CERAMIC 1000P Z 2K
C801	403 224 6108	CERAMIC 0.01U K 50V
C806	404 084 2408	ELECT 470U M 6.3V
C809	403 235 0607	CERAMIC 100P J 50V
C810	403 235 0607	CERAMIC 100P J 50V
C811	404 084 3801	ELECT 1U M 50V
C822	404 088 5702	ELECT 22U M 16V
C829	404 084 3801	ELECT 1U M 50V
C835	403 224 6108	CERAMIC 0.01U K 50V
C841	403 357 9601	CERAMIC 0.1U Z 50V
C842	403 357 9601	CERAMIC 0.1U Z 50V
C843	403 357 9601	CERAMIC 0.1U Z 50V
C853	404 087 1200	ELECT 0.1U M 50V
C854	403 235 0508	CERAMIC 82P J 50V
C856	404 084 3801	ELECT 1U M 50V
C857	403 235 1000	CERAMIC 220P J 50V
C858	403 224 5705	CERAMIC 1000P K 50V
C862	403 224 6108	CERAMIC 0.01U K 50V
C1002	404 084 2705	ELECT 10U M 16V
C1071	403 224 6108	CERAMIC 0.01U K 50V
C1902	404 084 2705	ELECT 10U M 16V
C3401	404 087 1200	ELECT 0.1U M 50V
C3404	403 086 0108	NP-ELECT 4.7U M 25V
C3406	403 325 2504	CERAMIC 0.012U K 50V
C3407	403 235 5701	CERAMIC 5600P K 50V
C3408	404 084 3702	ELECT 0.47U M 50V
C3411	404 084 3702	ELECT 0.47U M 50V
C3412	404 084 3207	ELECT 47U M 16V
C3413	404 084 4204	ELECT 4.7U M 50V
C3414	404 084 2804	ELECT 100U M 16V
C3416	403 086 0108	NP-ELECT 4.7U M 25V
C3417	404 084 4204	ELECT 4.7U M 50V
C3418	403 086 0108	NP-ELECT 4.7U M 25V
C3421	403 224 5606	CERAMIC 2700P K 50V
C3422	403 323 3602	CERAMIC 0.047U K 50V
C3423	403 342 9203	TA-SOLID 3.3U K 10V
C3424	403 086 0108	NP-ELECT 4.7U M 25V
C3426	403 299 1820	TA-SOLID 10U K 10V
C3427	404 084 3801	ELECT 1U M 50V
C3431	403 224 6009	CERAMIC 4700P K 50V
C3432	404 087 1200	ELECT 0.1U M 50V
C3433	403 224 6009	CERAMIC 4700P K 50V
C3434	403 343 4603	CERAMIC 0.022U K 50V
C3435	404 084 4204	ELECT 4.7U M 50V
C3436	403 086 0108	NP-ELECT 4.7U M 25V
C3437	404 084 4204	ELECT 4.7U M 50V
C3439	403 086 0108	NP-ELECT 4.7U M 25V
C3441	404 084 4204	ELECT 4.7U M 50V
C3442	404 084 4204	ELECT 4.7U M 50V
DIODES		
D001	408 047 4706	ZENER DIODE MTZJ15B (15V)
D101	408 047 6205	ZENER DIODE MTZJ36A (36V)
D351	408 047 6502	ZENER DIODE MTZJ5.1A (5.1V)
D408	407 222 4401	ZENER DIODE 1Z150 (15V)
★ D421	407 158 1307	ZENER DIODE HZ11B2L (11V)
★ D422	407 158 1307	ZENER DIODE HZ11B2L (11V)
D428	407 099 3309	ZENER DIODE MTZJ13C (13V)
	407 054 4808	ZENER DIODE RD13EB3 (13V)

Schematic Location	Part No.	Description
D429	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D471	407 006 4108	DIODE ERB44-04
	407 007 7603	DIODE EU2
D481	407 124 6404	DIODE ERA18-04
	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
D482	407 011 4407	DIODE TVR1G
D483	407 124 6404	DIODE ERA18-04
	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
D486	408 047 2306	ZENER DIODE MTZJ10B (10V)
D487	407 005 8602	DIODE ERA15-02
	407 088 6502	DIODE MPG06D
	407 011 3004	DIODE S5277B
	408 009 9404	DIODE 1N4002ID
D490	408 047 7707	ZENER DIODE MTZJ5.6C (5.6V)
D501	407 005 8602	DIODE ERA15-02
	407 088 6502	DIODE MPG06D
	407 011 3004	DIODE S5277B
	408 009 9404	DIODE 1N4002ID
★ D601	407 005 7605	DIODE EM2B
	408 008 8606	DIODE GP15G
	407 013 3200	DIODE 1S1887A
★ D602	407 005 7605	DIODE EM2B
	408 008 8606	DIODE GP15G
	407 013 3200	DIODE 1S1887A
★ D603	407 005 7605	DIODE EM2B
	408 008 8606	DIODE GP15G
	407 013 3200	DIODE 1S1887A
★ D604	407 005 7605	DIODE EM2B
	408 008 8606	DIODE GP15G
	407 013 3200	DIODE 1S1887A
D611	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
★ D612	407 147 5705	PHOTO COUPLE ON3131S
	407 104 2402	PHOTO COUPLE PC817C
	407 106 6101	PHOTO COUPLE PC817D
	407 175 9904	PHOTO COUPLE TLP621-1-BL
D613	407 063 9702	ZENER DIODE MTZJ9.1C (9.1V)
	407 057 9800	ZENER DIODE RD9.1EB3 (9.1V)
D614	407 006 0100	DIODE ERA91-02
★ D624	407 106 2806	DIODE RU3YX
★ D625	407 009 8806	DIODE RU3AM
D627	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D629	407 099 7208	ZENER DIODE MTZJ16A (16V)
	407 054 7007	ZENER DIODE RD16EB1 (16V)
D680	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D693	407 099 5501	ZENER DIODE MTZJ6.2C (6.2V)
	407 057 2801	ZENER DIODE RD6.2EB3 (6.2V)
D801	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D831	407 222 5903	ZD UDZS-TE-173.6B (3.6V)

Schematic Location	Part No.	Description
D834	408 047 8308	ZENER DIODE MTZJ6.2C (6.2V)
D836	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D843	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D1002	408 047 2306	ZENER DIODE MTZJ10B (10V)
D1901	408 047 8605	ZENER DIODE MTZJ6.8A (6.8V)
D1902	408 047 2306	ZENER DIODE MTZJ10B (10V)

INTEGRATED CIRCUITS

IC001	409 275 7903	IC LA4525
★ IC101	409 491 4809	IC LA76834NM-TBM
★ IC501	409 449 4103	IC LA78040
	409 510 1109	IC TDA9302H
★ IC601	409 172 8003	IC SE136N
IC681	409 241 8309	IC TA78L05S
	409 066 7303	IC UPC78L05J
IC801	410 418 8602	IC M37272M*.-***FP T4
IC802	409 495 6908	IC CAT24WC02P
	409 440 8902	IC M24C02-BN6
	409 376 1503	IC ST24C02B6
	409 497 0706	IC S524C20D21-DCB0
	409 333 3700	IC 24LC02B/P
IC3401	409 467 1108	IC CXA2134Q-T6

COILS

★ LF601	645 052 4073	LINE FILTER
L164	645 003 9713	INDUCTOR, 15U K
	645 016 2657	INDUCTOR, 15U K
L401	645 017 7682	INDUCTOR, 5.6U, FILTER
L402	652 000 2180	CORE, PIPE
L602	645 005 0763	CORE, PIPE
L611	610 078 5946	PIPE CORE
L612	610 078 5946	PIPE CORE
L623	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L625	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L801	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L811	645 006 2490	INDUCTOR, 1U K
	645 016 2411	INDUCTOR, 1U K
L812	645 006 2490	INDUCTOR, 1U K
	645 016 2411	INDUCTOR, 1U K
L821	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L851	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
★ L901	645 051 8751	ASSY, COIL, DEGAUSSING
★ L902	645 026 3927	YOKE, DEFLECTION
L1901	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K

Schematic Location	Part No.	Description
TRANSISTORS		
Q001	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q005	405 008 4805	TR 2SB764-E
	405 008 4904	TR 2SB764-F
Q135	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q202	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 151 3304	TR 2SA608NF-NPA
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
Q208	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 151 3304	TR 2SA608NF-NPA
	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
Q401	405 040 5600	TR 2SC2228-D
	405 029 6901	TR 2SC2228-E
	405 040 6102	TR 2SC2228M
★ Q402	405 157 1304	TR 2SD2634-YB
Q486	405 023 5009	TR 2SD400-E-MP
	405 023 5306	TR 2SD400-F-MP
Q490	405 023 5009	TR 2SD400-E-MP
	405 023 5306	TR 2SD400-F-MP
★ Q601	405 166 7601	TR 2SK2872
Q611	405 013 6801	TR 2SC2274-E
	405 013 7006	TR 2SC2274-F
Q612	405 006 6504	TR 2SA984-E
	405 006 6702	TR 2SA984-F
Q613	405 013 6801	TR 2SC2274-E
	405 013 7006	TR 2SC2274-F
Q627	405 089 0000	TR 2SA1707-S
	405 089 0109	TR 2SA1707-T
	405 009 6907	TR 2SB985-S
	405 009 7003	TR 2SB985-T

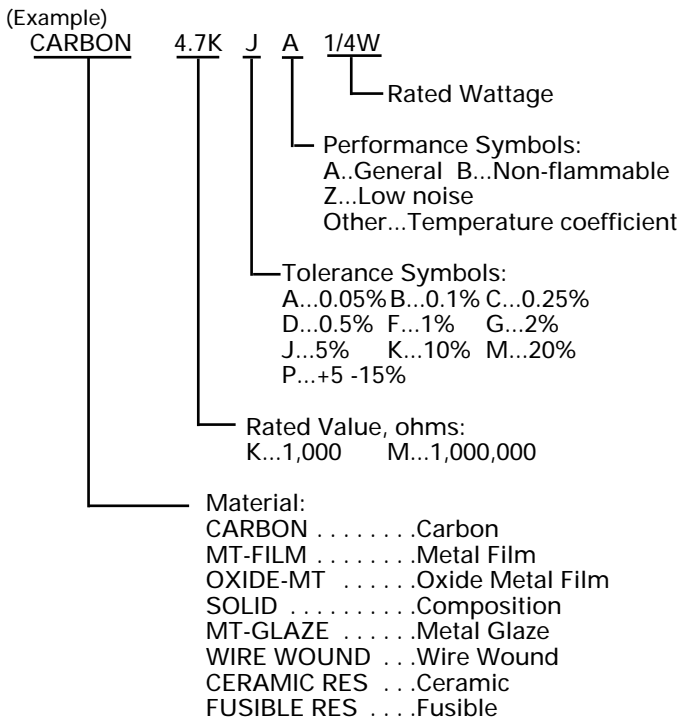
Schematic Location	Part No.	Description
Q635	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q681	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q693	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q695	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3208	TR 2SA564A-R(CU)
	405 004 4809	TR 2SA608-F-CTV-NP
Q701	406 000 3605	TR 2SC3620(LB-SAN-1)
	405 066 4304	TR 2SC2621-C-RA
	405 041 6507	TR 2SC2621-D-RA
	405 041 6705	TR 2SC2621-E-RA
	405 066 9903	TR 2SC2688(1)-K
	405 067 0008	TR 2SC2688(1)-L
	405 067 0107	TR 2SC2688(1)-M
Q711	406 000 3605	TR 2SC3620(LB-SAN-1)
	405 066 4304	TR 2SC2621-C-RA
	405 041 6507	TR 2SC2621-D-RA
	405 041 6705	TR 2SC2621-E-RA
	405 066 9903	TR 2SC2688(1)-K
	405 067 0008	TR 2SC2688(1)-L
	405 067 0107	TR 2SC2688(1)-M
Q721	406 000 3605	TR 2SC3620(LB-SAN-1)
	405 066 4304	TR 2SC2621-C-RA
	405 041 6507	TR 2SC2621-D-RA
	405 041 6705	TR 2SC2621-E-RA
	405 066 9903	TR 2SC2688(1)-K
	405 067 0008	TR 2SC2688(1)-L
	405 067 0107	TR 2SC2688(1)-M

Schematic Location	Part No.	Description	
Q831	405 134 5925	TR 2SA1037AK T146 R	
	405 147 2205	TR 2SA1037AK T146 S	
	405 002 0308	TR 2SA1037K-T-96-R	
	405 002 0407	TR 2SA1037K-T-96-S	
	405 002 6726	TR 2SA1179-M6	
	405 002 6924	TR 2SA1179-M7-TB	
	405 163 1503	TR 2SA1179N-M6-TB	
	405 163 2708	TR 2SA1179N-M7-TB	
	Q1071	406 000 6804	TR 2SA1015-GR(SAN)
		405 001 7407	TR 2SA1015-O(SAN)
405 001 7605		TR 2SA1015-Y(SAN)	
405 004 3109		TR 2SA564A-Q(CU)	
405 004 3208		TR 2SA564A-R(CU)	
405 151 3304		TR 2SA608NF-NPA	
405 006 1707		TR 2SA933S-Q	
405 006 1806		TR 2SA933S-R	

RESISTORS

NOTES:

Read description of the Resistor as follows:



Schematic Location	Part No.	Description
R137	401 150 6209	MT-GLAZE 1K JA 1/10W
R142	401 256 1702	MT-GLAZE 33K JA 1/10W
R143	401 150 6209	MT-GLAZE 1K JA 1/10W
R151	401 152 3206	MT-GLAZE 330 JA 1/10W
R161	401 150 5806	MT-GLAZE 100K JA 1/10W
R162	401 150 5806	MT-GLAZE 100K JA 1/10W
R163	401 256 0002	MT-GLAZE 120 JA 1/10W
R164	401 150 6209	MT-GLAZE 1K JA 1/10W
R166	401 256 7506	MT-GLAZE 390 JA 1/10W
R167	401 162 2701	MT-GLAZE 180 JA 1/10W
R201	401 026 9600	CARBON 470 JA 1/6W
R208	401 150 6209	MT-GLAZE 1K JA 1/10W
R209	401 255 6500	MT-GLAZE 100 JA 1/10W
R212	401 256 7100	MT-GLAZE 680K JA 1/10W
R251	401 162 3005	MT-GLAZE 22K JA 1/10W
R252	401 025 8208	CARBON 22K JA 1/6W
R272	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R273	401 150 5905	MT-GLAZE 10K JA 1/10W
R274	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R276	401 024 9701	CARBON 12K JA 1/6W
R281	401 150 5905	MT-GLAZE 10K JA 1/10W
R284	401 026 9303	CARBON 47 JA 1/6W
R287	401 255 6500	MT-GLAZE 100 JA 1/10W
R288	401 255 6500	MT-GLAZE 100 JA 1/10W
R289	401 255 6500	MT-GLAZE 100 JA 1/10W
R321	401 150 5905	MT-GLAZE 10K JA 1/10W
R353	401 024 7400	CARBON 10K JA 1/6W
★ R401	401 012 4503	CARBON 100 JA 1/4W
★ R402	401 013 4205	CARBON 120 JA 1/4W
R404	401 025 7409	CARBON 220 JA 1/6W
R405	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R406	401 017 1804	CARBON 2.7K JA 1/4W
★ R407	401 069 8202	OXIDE-MT 8.2K JA 2W
★ R412	401 066 3705	OXIDE-MT 2.7 JA 2W
R416	401 026 9303	CARBON 47 JA 1/6W
★ R421	401 286 5305	MT-FILM 2.4K FA 1/6W
★ R422	401 052 6802	MT-FILM 10K FA 1/6W
★ R423	401 264 9301	MT-GLAZE 3.3K FA 1/10W
R426	401 256 6905	MT-GLAZE 680 JA 1/10W
R428	401 024 9701	CARBON 12K JA 1/6W
R441	401 024 7004	CARBON 1K JA 1/6W
R442	401 150 5905	MT-GLAZE 10K JA 1/10W
R443	401 026 9907	CARBON 4.7K JA 1/6W
R444	401 025 4606	CARBON 18K JA 1/6W
R449	401 265 1700	MT-GLAZE 4.7K FA 1/10W
★ R471	401 006 7701	CARBON 1 JB 1/2W
★ R472	401 069 5607	OXIDE-MT 8.2 JA 2W
★ R481	401 011 1206	CARBON 68 JB 1/2W
★ R482	401 011 9004	CARBON 1 JB 1/4W
★ R483	401 006 7701	CARBON 1 JB 1/2W
R485	401 025 4606	CARBON 18K JA 1/6W
★ R486	401 069 5607	OXIDE-MT 8.2 JA 2W
R487	401 026 6609	CARBON 390 JA 1/6W
★ R488	401 059 1602	OXIDE-MT 15 JA 1W
★ R489	401 066 5204	OXIDE-MT 22 JA 2W
R491	401 012 5708	CARBON 1K JA 1/4W
R492	401 156 8504	MT-FILM 33K FA 1/6W
R493	401 019 4001	CARBON 390K JA 1/4W
★ R495	401 061 1706	OXIDE-MT 33 JA 1W
★ R497	401 066 3002	OXIDE-MT 2.2 JA 2W

R001	401 256 0101	MT-GLAZE 8.2K JA 1/10W
R002	401 256 0101	MT-GLAZE 8.2K JA 1/10W
R003	401 162 2800	MT-GLAZE 1.8K JA 1/10W
R004	401 162 2800	MT-GLAZE 1.8K JA 1/10W
R005	401 150 5905	MT-GLAZE 10K JA 1/10W
R006	401 014 4105	CARBON 1.5K JA 1/4W
R011	401 025 1308	CARBON 150 JA 1/6W
R012	401 025 1308	CARBON 150 JA 1/6W
R013	401 027 2600	CARBON 5.6K JA 1/6W
★ R106	401 008 2001	CARBON 18K JA 1/2W
R107	401 023 2802	CARBON 8.2K JA 1/4W
R131	401 256 1702	MT-GLAZE 33K JA 1/10W
R133	401 255 6401	MT-GLAZE 3K JA 1/10W
R135	401 150 6001	MT-GLAZE 0.000 ZA 1/10W

Schematic Location	Part No.	Description
R499	401 026 6609	CARBON 390 JA 1/6W
R503	401 026 7002	CARBON 3.9K JA 1/6W
R504	401 026 9907	CARBON 4.7K JA 1/6W
R505	401 006 8401	CARBON 1.5 JA 1/2W
R506	401 025 1308	CARBON 150 JA 1/6W
R507	401 006 8807	CARBON 1.8 JA 1/2W
R508	401 027 5502	CARBON 6.8K JA 1/6W
R509	401 024 7400	CARBON 10K JA 1/6W
★ R511	401 066 6102	OXIDE-MT 220 JA 2W
R513	401 008 7501	CARBON 2.2K JA 1/2W
R517	401 025 4606	CARBON 18K JA 1/6W
R518	401 256 7209	MT-GLAZE 18K JA 1/10W
★ R601	402 071 0000	WIRE WOUND 1 KA 5W
	402 075 1508	WIRE WOUND 1 KA 5W
★ R602	402 000 1603	SOLID 3.3M MA 1/2W
	402 088 1502	RESISTER 3.3M JA 1/2W
R603	401 010 9203	CARBON 560K JA 1/2W
★ R604	401 066 3002	OXIDE-MT 2.2 JA 2W
R606	401 019 9600	CARBON 47 JA 1/4W
R607	401 016 1508	CARBON 22 JA 1/4W
R608	401 162 3807	MT-GLAZE 470K JA 1/10W
R609	401 162 3005	MT-GLAZE 22K JA 1/10W
R611	401 027 0309	CARBON 47K JA 1/6W
★ R612	402 001 8502	FUSIBLE RES 10 J- 1/2W
★ R613	401 064 1802	OXIDE-MT 0.39 JA 2W
R614	401 020 0900	CARBON 470 JB 1/4W
R616	401 150 5905	MT-GLAZE 10K JA 1/10W
★ R617	402 001 8106	FUSIBLE RES 680 J- 1/4W
R618	401 012 5708	CARBON 1K JA 1/4W
R619	401 162 3005	MT-GLAZE 22K JA 1/10W
R627	401 150 5905	MT-GLAZE 10K JA 1/10W
R628	401 013 5301	CARBON 1.2K JA 1/4W
R629	401 150 6209	MT-GLAZE 1K JA 1/10W
★ R630	401 060 5002	OXIDE-MT 22K JA 1W
R631	401 022 3107	CARBON 6.8K JA 1/4W
R632	401 150 6209	MT-GLAZE 1K JA 1/10W
R634	401 027 0309	CARBON 47K JA 1/6W
R683	401 026 9907	CARBON 4.7K JA 1/6W
R691	401 150 5905	MT-GLAZE 10K JA 1/10W
R692	401 027 5908	CARBON 68K JA 1/6W
R693	401 256 5106	MT-GLAZE 560K JA 1/10W
R694	401 024 7400	CARBON 10K JA 1/6W
R695	401 162 3005	MT-GLAZE 22K JA 1/10W
R701	401 025 3807	CARBON 180 JA 1/6W
R703	401 256 0309	MT-GLAZE 820 JA 1/10W
R704	401 027 8107	CARBON 82 JA 1/6W
R706	401 009 1508	CARBON 2.7K JA 1/2W
★ R707	401 058 9807	OXIDE-MT 12K JA 1W
R711	401 025 3807	CARBON 180 JA 1/6W
R713	401 256 0309	MT-GLAZE 820 JA 1/10W
R714	401 255 9006	MT-GLAZE 82 JA 1/10W
R716	401 009 1508	CARBON 2.7K JA 1/2W
★ R717	401 058 9807	OXIDE-MT 12K JA 1W
R721	401 025 3807	CARBON 180 JA 1/6W
R723	401 256 0309	MT-GLAZE 820 JA 1/10W
R724	401 027 8107	CARBON 82 JA 1/6W
R726	401 009 1508	CARBON 2.7K JA 1/2W
★ R727	401 058 9807	OXIDE-MT 12K JA 1W
R803	401 024 6700	CARBON 100 JA 1/6W
R804	401 024 6700	CARBON 100 JA 1/6W

Schematic Location	Part No.	Description
R806	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R807	401 150 5905	MT-GLAZE 10K JA 1/10W
R808	401 150 5905	MT-GLAZE 10K JA 1/10W
R809	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R810	401 162 3005	MT-GLAZE 22K JA 1/10W
R813	401 150 5905	MT-GLAZE 10K JA 1/10W
R814	401 150 5905	MT-GLAZE 10K JA 1/10W
R816	401 152 3206	MT-GLAZE 330 JA 1/10W
R823	401 024 6700	CARBON 100 JA 1/6W
R829	401 024 6700	CARBON 100 JA 1/6W
R831	401 150 5806	MT-GLAZE 100K JA 1/10W
R833	401 024 7400	CARBON 10K JA 1/6W
R835	401 256 5908	MT-GLAZE 2.7K JA 1/10W
R842	401 162 4002	MT-GLAZE 560 JA 1/10W
R843	401 162 4002	MT-GLAZE 560 JA 1/10W
R844	401 162 4002	MT-GLAZE 560 JA 1/10W
R846	401 024 7004	CARBON 1K JA 1/6W
R847	401 027 2600	CARBON 5.6K JA 1/6W
R848	401 027 2600	CARBON 5.6K JA 1/6W
R849	401 027 2600	CARBON 5.6K JA 1/6W
R851	401 150 6209	MT-GLAZE 1K JA 1/10W
R852	401 162 3401	MT-GLAZE 39K JA 1/10W
R853	401 255 6005	MT-GLAZE 1M JA 1/10W
R854	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R856	401 024 6700	CARBON 100 JA 1/6W
R857	401 024 6700	CARBON 100 JA 1/6W
R858	401 162 3005	MT-GLAZE 22K JA 1/10W
R862	401 255 6500	MT-GLAZE 100 JA 1/10W
R864	401 256 0200	MT-GLAZE 120K JA 1/10W
R881	401 255 6500	MT-GLAZE 100 JA 1/10W
R882	401 255 6500	MT-GLAZE 100 JA 1/10W
R883	401 024 6700	CARBON 100 JA 1/6W
R884	401 024 6700	CARBON 100 JA 1/6W
R886	401 150 5905	MT-GLAZE 10K JA 1/10W
R1002	401 256 2709	MT-GLAZE 75 JA 1/10W
R1003	401 150 5905	MT-GLAZE 10K JA 1/10W
R1004	401 256 6004	MT-GLAZE 27K JA 1/10W
R1071	401 026 6609	CARBON 390 JA 1/6W
R1072	401 024 6700	CARBON 100 JA 1/6W
R1901	401 150 5905	MT-GLAZE 10K JA 1/10W
R1902	401 150 6209	MT-GLAZE 1K JA 1/10W
R1903	401 162 2800	MT-GLAZE 1.8K JA 1/10W
R1904	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R1905	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R1906	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R1907	401 256 0408	MT-GLAZE 12K JA 1/10W
R1909	401 024 7004	CARBON 1K JA 1/6W
R1910	401 024 7004	CARBON 1K JA 1/6W
R3401	401 162 2909	MT-GLAZE 220 JA 1/10W
R3402	401 162 2909	MT-GLAZE 220 JA 1/10W
R3406	401 150 5806	MT-GLAZE 100K JA 1/10W
R3407	401 255 6005	MT-GLAZE 1M JA 1/10W
R3411	401 265 4008	MT-GLAZE 62K JA 1/10W
R3421	401 162 3104	MT-GLAZE 3.3K JA 1/10W
R3422	401 255 6401	MT-GLAZE 3K JA 1/10W
R3426	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R3432	401 150 5905	MT-GLAZE 10K JA 1/10W
R3433	401 150 5905	MT-GLAZE 10K JA 1/10W
R3434	401 162 4002	MT-GLAZE 560 JA 1/10W
R3435	401 150 5806	MT-GLAZE 100K JA 1/10W

Schematic Location	Part No.	Description
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R3436	401 162 4002	MT-GLAZE 560 JA 1/10W
R3437	401 150 5806	MT-GLAZE 100K JA 1/10W
R3441	401 256 1405	MT-GLAZE 330K JA 1/10W
R3442	401 255 6500	MT-GLAZE 100 JA 1/10W
R3443	401 256 1405	MT-GLAZE 330K JA 1/10W
R3444	401 255 6500	MT-GLAZE 100 JA 1/10W

SWITCHES

SW1901	645 006 9673	SWITCH, PUSH (POWER)
	645 027 7382	SWITCH, PUSH (POWER)
	645 052 2284	SWITCH, PUSH (POWER)
SW1902	645 006 9673	SWITCH, PUSH (VOL +)
	645 027 7382	SWITCH, PUSH (VOL +)
	645 052 2284	SWITCH, PUSH (VOL +)
SW1903	645 006 9673	SWITCH, PUSH (VOL -)
	645 027 7382	SWITCH, PUSH (VOL -)
	645 052 2284	SWITCH, PUSH (VOL -)
SW1904	645 006 9673	SWITCH, PUSH (CH ▲)
	645 027 7382	SWITCH, PUSH (CH ▲)
	645 052 2284	SWITCH, PUSH (CH ▲)
SW1905	645 006 9673	SWITCH, PUSH (CH ▼)
	645 027 7382	SWITCH, PUSH (CH ▼)
	645 052 2284	SWITCH, PUSH (CH ▼)
SW1906	645 006 9673	SWITCH, PUSH (MENU)
	645 027 7382	SWITCH, PUSH (MENU)
	645 052 2284	SWITCH, PUSH (MENU)

TRANSFORMERS

T151	645 049 3775	TRANS, OSC 45.75MHZ
T401	652 000 1442	TRANS, DRIVE
★ T402	645 043 3825	TRANS, FLYBACK
★ T601	645 051 2353	TRANS, POWER, PULSE
	645 051 4937	TRANS, POWER, PULSE

CRYSTAL/FILTERS

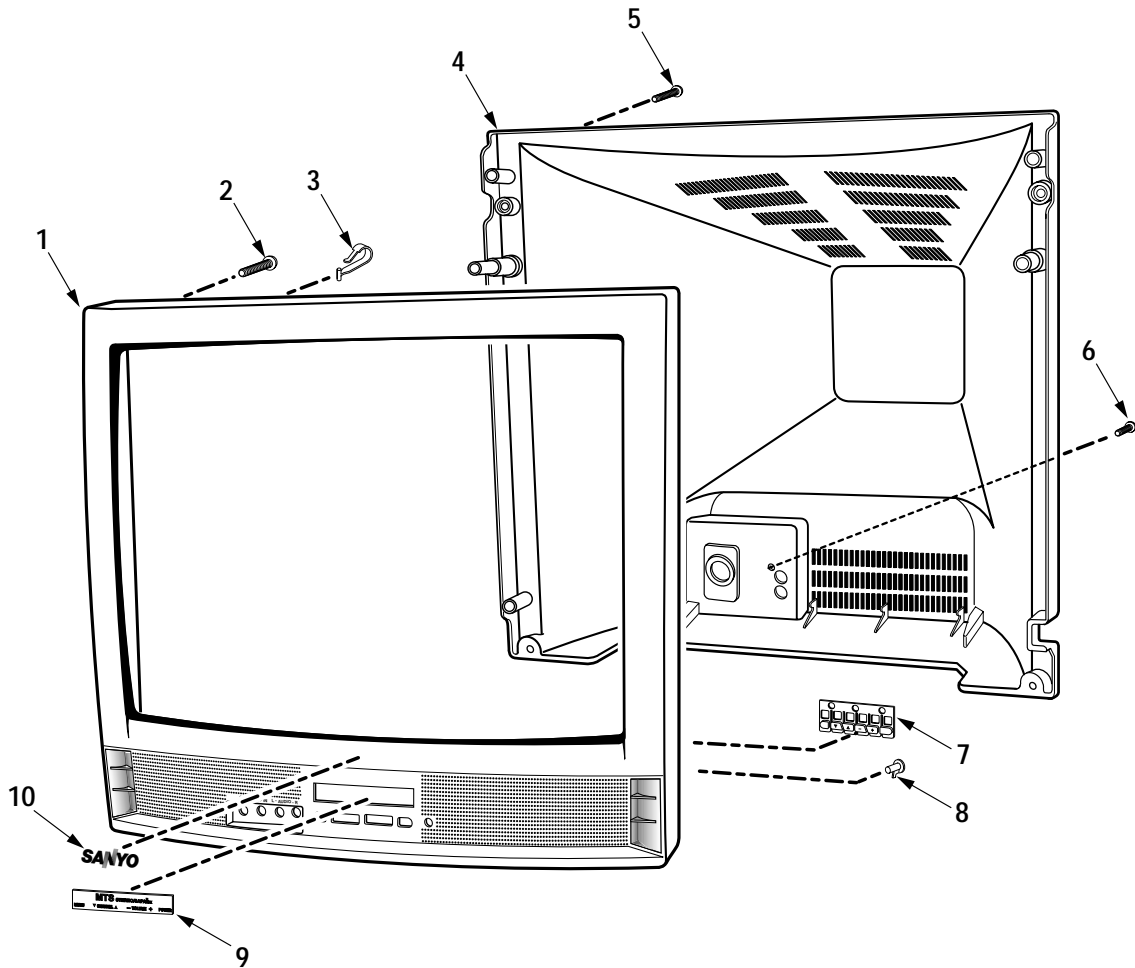
X141	421 008 9008	SAW F TSF5235P
X161	610 015 3059	TRAP, CERAMIC 4.5MHZ
	645 041 1618	TRAP, CERAMIC 4.5MHZ
X251	610 204 4195	CRYSTAL OSCILLATOR
	610 245 9746	CRYSTAL OSCILLATOR
	610 012 0655	CRYSTAL OSCILLATOR
X801	645 000 6692	OSC, CERAMIC 8.00MHZ
	645 021 5483	OSC, CERAMIC 8.00MHZ

Schematic Location	Part No.	Description
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MISCELLANEOUS

A100	610 295 5927	ASSY, PWB, MAIN
★ A101	645 053 7936	TUNER, U/V
	645 052 6077	TUNER, U/V
A700	610 295 5934	ASSY, PWB, SOCKET
A1901	645 047 6228	UNIT, REMOCON RECEIVER
★ F601	423 029 8008	FUSE 125V 4A
	423 018 8101	FUSE 125V 4A
	423 007 1601	FUSE 125V 4A
	423 007 1809	FUSE 125V 4A
F601A	645 000 5077	HOLDER, FUSE
	645 016 0479	HOLDER, FUSE
F601B	645 000 5077	HOLDER, FUSE
	645 016 0479	HOLDER, FUSE
K011	645 006 4791	JACK, PHONE D3.6
★ K701	645 025 6103	SOCKET, CRT 8P
	645 028 0306	SOCKET, CRT 8P
K1003	645 032 8954	JACK, RCA-2
K1011	645 051 0847	JACK, RCA-3
★ PS601	408 046 5209	TH PTDAA1BF3R0Q100
★ Q901	414 009 3205	CRT A48KRD82X(DT)
Q901A1	610 117 0154	DY SPACER-D4AK
	610 117 7924	DY SPACER
Q901A2	610 117 0154	DY SPACER-D4AK
	610 117 7924	DY SPACER
Q901A3	610 117 0154	DY SPACER-D4AK
	610 117 7924	DY SPACER
Q901C	610 217 7794	CG PURITY MAGNET
SP901	645 028 0870	SPEAKER, 8
SP902	645 028 0870	SPEAKER, 8
★ W601	645 030 5276	CORD, POWER-2.0MK
★ W902	610 284 9233	ASSY, WIRE GND CONNECTOR
	610 287 6598	ASSY, WIRE GND CONNECTOR

CABINET PARTS LIST



CABINET PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	610 280 8872	CABINET FRONT ASSY
2	412 000 7604	CRT MTG SCREW (4 USED)
	OR 412 047 8206	CRT MTG SCREW (4 USED)
3	610 102 7151	DC HOLDER (2 USED)
4	610 280 8889	CABINET BACK
5	412 036 1805	SCREW 4X14 (4 USED)
6	412 018 8402	SCREW 3X10 (1 USED)
7	610 275 1864	BUTTON UNIT
8	610 267 0851	CAP RC
9	610 282 7927	DEC SHEET
10	610 285 5685	SANYO BADGE-SMALL

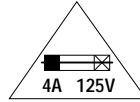
ACCESSORY PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
	610 297 8865	OWNER'S MANUAL
	645 051 8508	RC TRANSMITTER
OR	645 051 8553	RC TRANSMITTER
	610 290 1221	RC BATTERY COVER
OR	610 290 1283	RC BATTERY COVER

COMPONENT AND TESTPOINT LOCATIONS

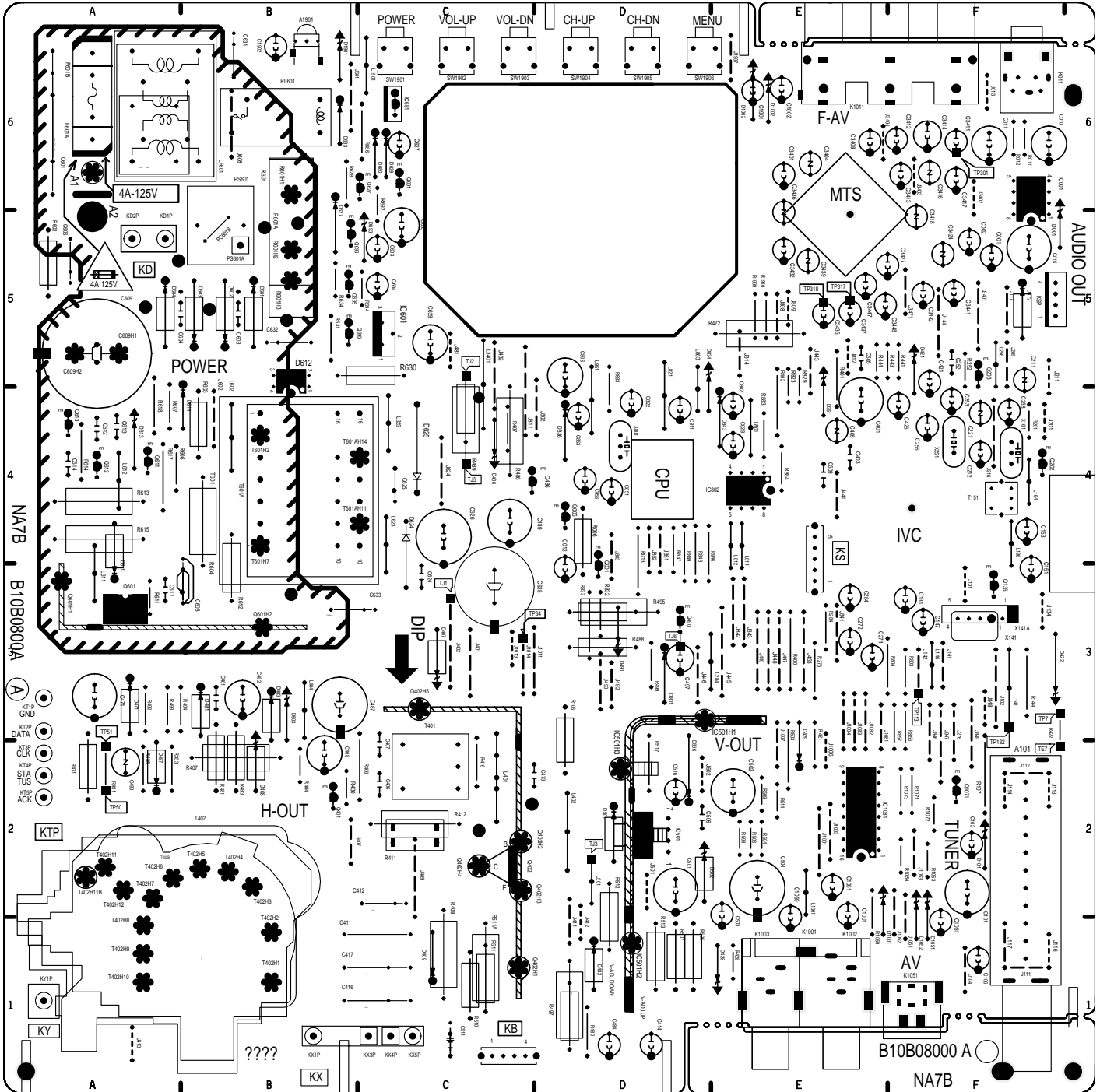
MAIN BOARD PARTS SIDE

CAUTION

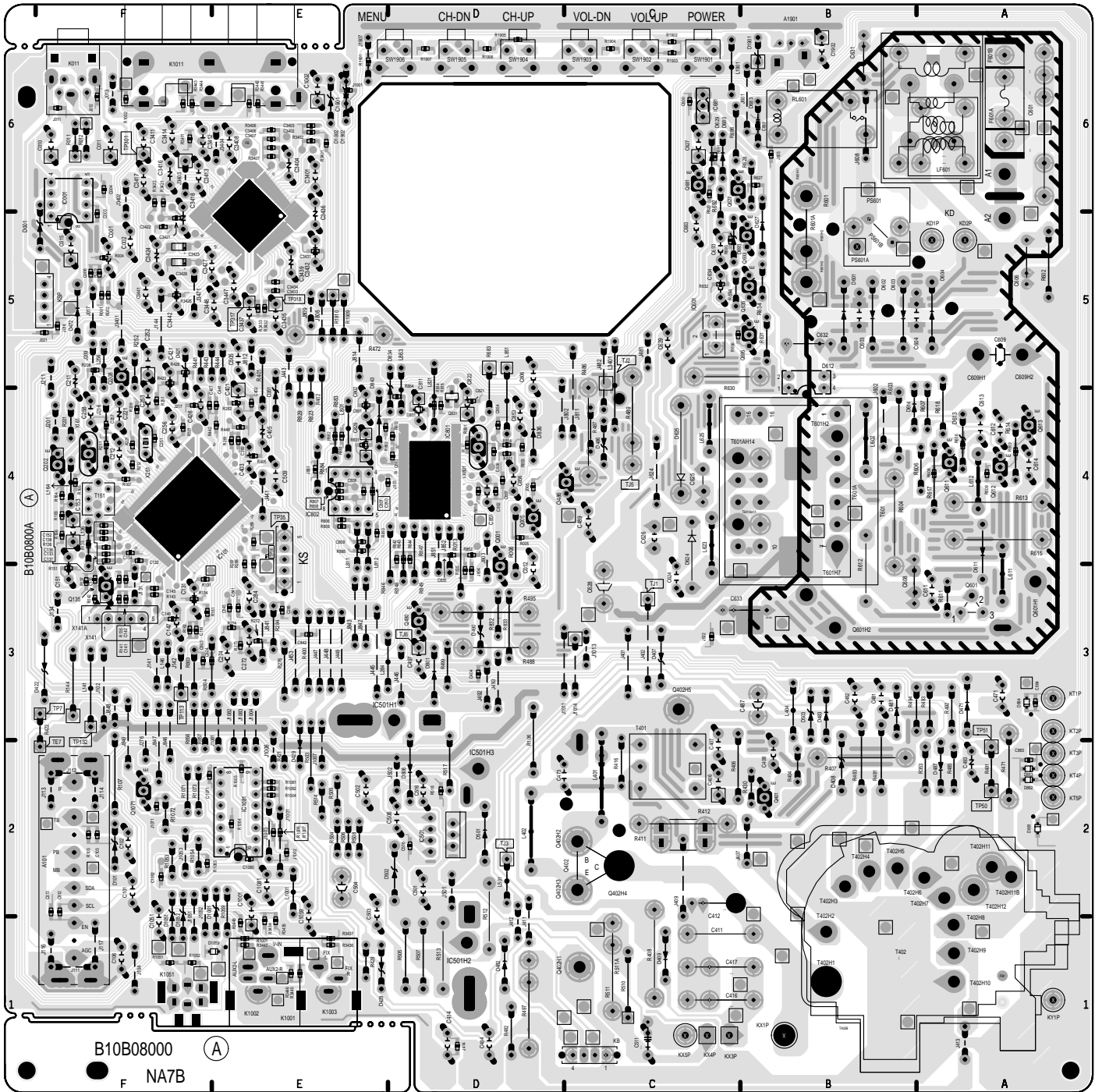


FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.

ATTENTION : POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D'INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.



MAIN BOARD FOIL SIDE

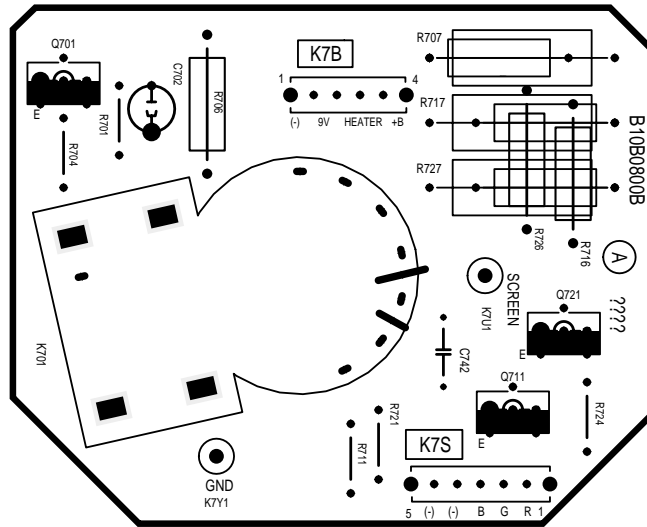


MAIN BOARD COMPONENTS AND TEST POINTS GRID LOCATIONS

Part	Loc.	Part	Loc.	Part	Loc.	Part	Loc.	Part	Loc.
D429	E2	IC802	E4	Q486	D4	Q693	C5	TJ6	D3
D612	B5	IC3401	E5	Q490	D3	Q695	C5	TP16	F4
D802	E2	Q001	D4	Q601	A3	Q831	D5	TP21	F3
IC001	F6	Q005	D4	Q611	A4	Q1071	F2	TP50	A2
IC101	E4	Q135	F3	Q612	A4	R512	D2	TP51	A2
IC501	D2	Q202	F4	Q613	B4	R513	D1	TP317	E5
IC601	C5	Q208	F5	Q627	C6	TE7	F2	TP318	E5
IC681	C6	Q401	B2	Q635	B5	TP7	F3	T151	F4
IC801	D4	Q402	C2	Q681	C6	TJ1	C3		

COMPONENT AND TESTPOINT LOCATIONS (Cont.)

PICTURE TUBE SOCKET BOARD



PIC TUBE SOCKET BOARD COMPONENTS

Part	Loc.
Q701	N/A
Q711	N/A
Q721	N/A

For parts or service contact
SANYO Fisher Service Corporation
 21605 Plummer Street
 Chatsworth, CA 91311 (U.S.A.)
 300 Applewood Crescent,
 Concord, Ontario L4K 5C7 (CANADA)

SCHMATIC DIAGRAMS

NOTES ON SCHEMATIC DIAGRAMS

- All resistance values in ohms K=1,000 M=1,000,000.
- Unless otherwise noted on schematic, all capacitor values less than 1 are expressed in μF (Micro Farad), and the values more than 1 are in pF.
- Unless otherwise noted on schematic, voltage reading taken with VOM from point indicated to chassis ground. Voltage reading taken using color-bar signal VHF channel 5, all controls at normal. Line voltage at 120 volts. Some voltages may vary with signal strength.
- Waveforms were taken with color-bar signal and controls set for normal picture. Waveforms marked with an * may vary with signal strength.
- The Symbol R_{FUS} indicates a fusible resistor, which protects the circuit from possible short circuits.

SERVICE NOTES:

- When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
- When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (3/8) from circuit board.
- Keep wires away from high voltage and high temperature components.

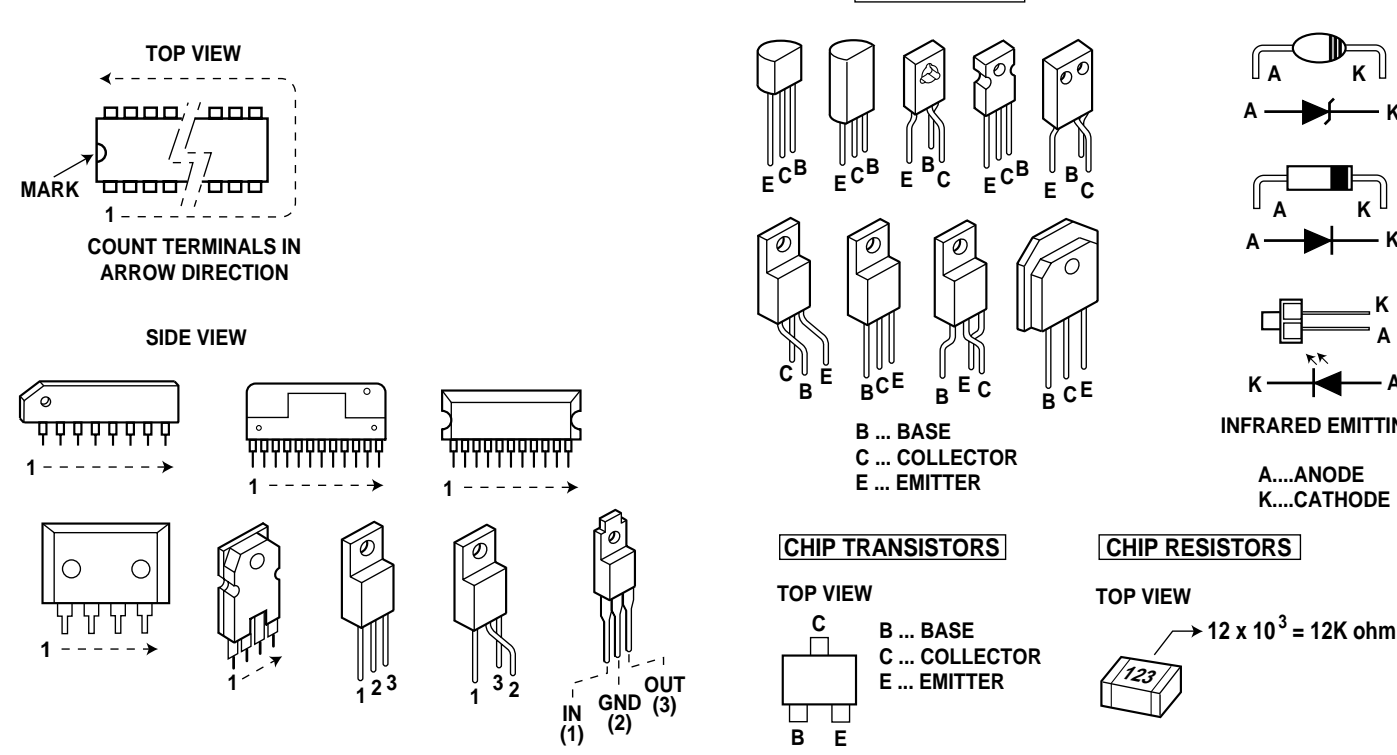
PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A STAR (*) ON THIS SCHEMATIC DIAGRAM DESIGNATE COMPONENTS WHOSE VALUES ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A STAR NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

X-RADIATION WARNING NOTE

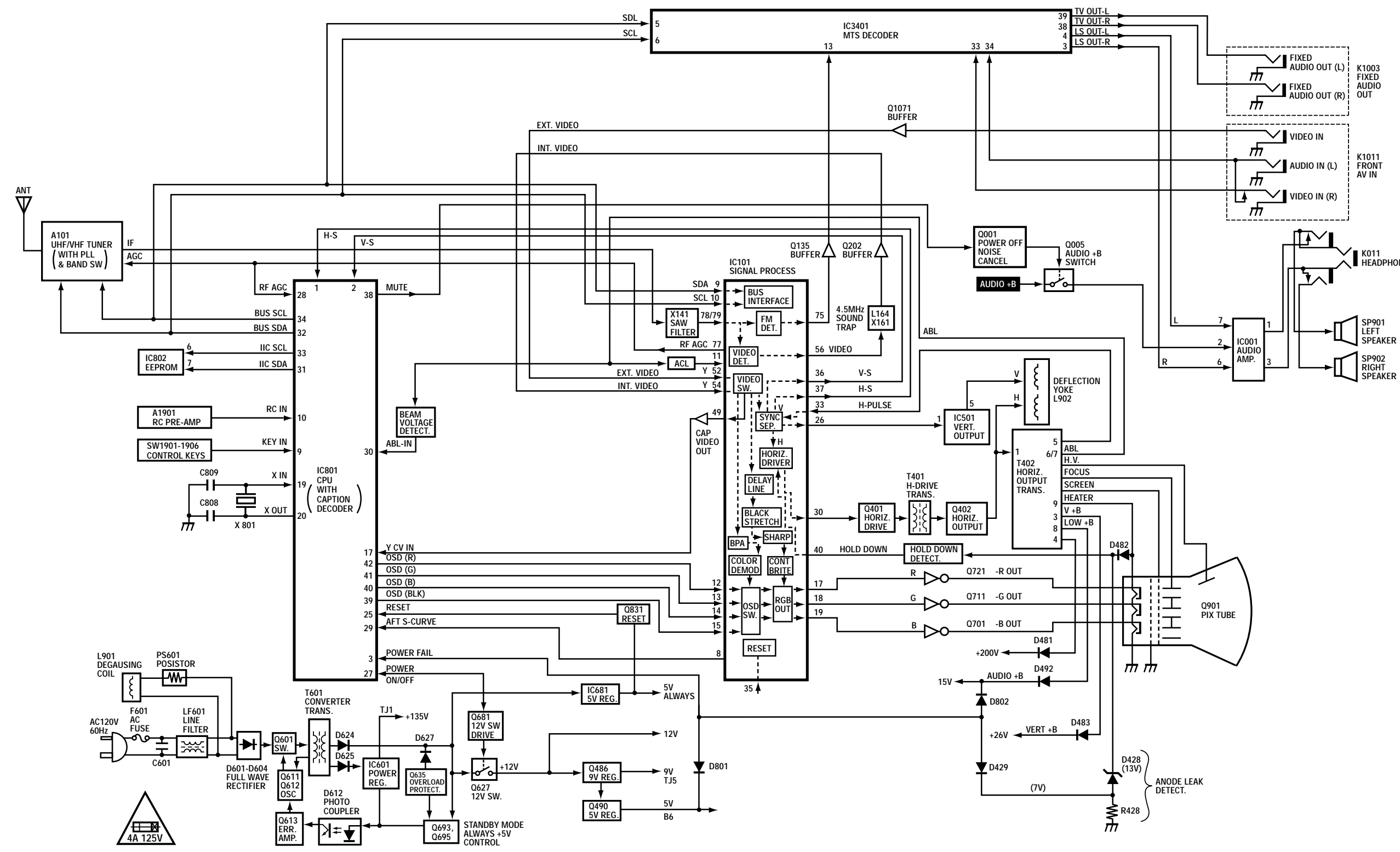
THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NOMINAL 2ND ANODE VOLTAGE IS 26.0KV AT ZERO BEAM CURRENT AT 120 VOLTS AC LINE, AND MUST NOT EXCEED 27.0KV UNDER ANY OPERATING CONDITION. SEE HIGH VOLTAGE CHECK ON PAGE 8.

INTEGRATED CIRCUITS



BLOCK DIAGRAM

CAUTION
FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.
ATTENTION: POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D'INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.



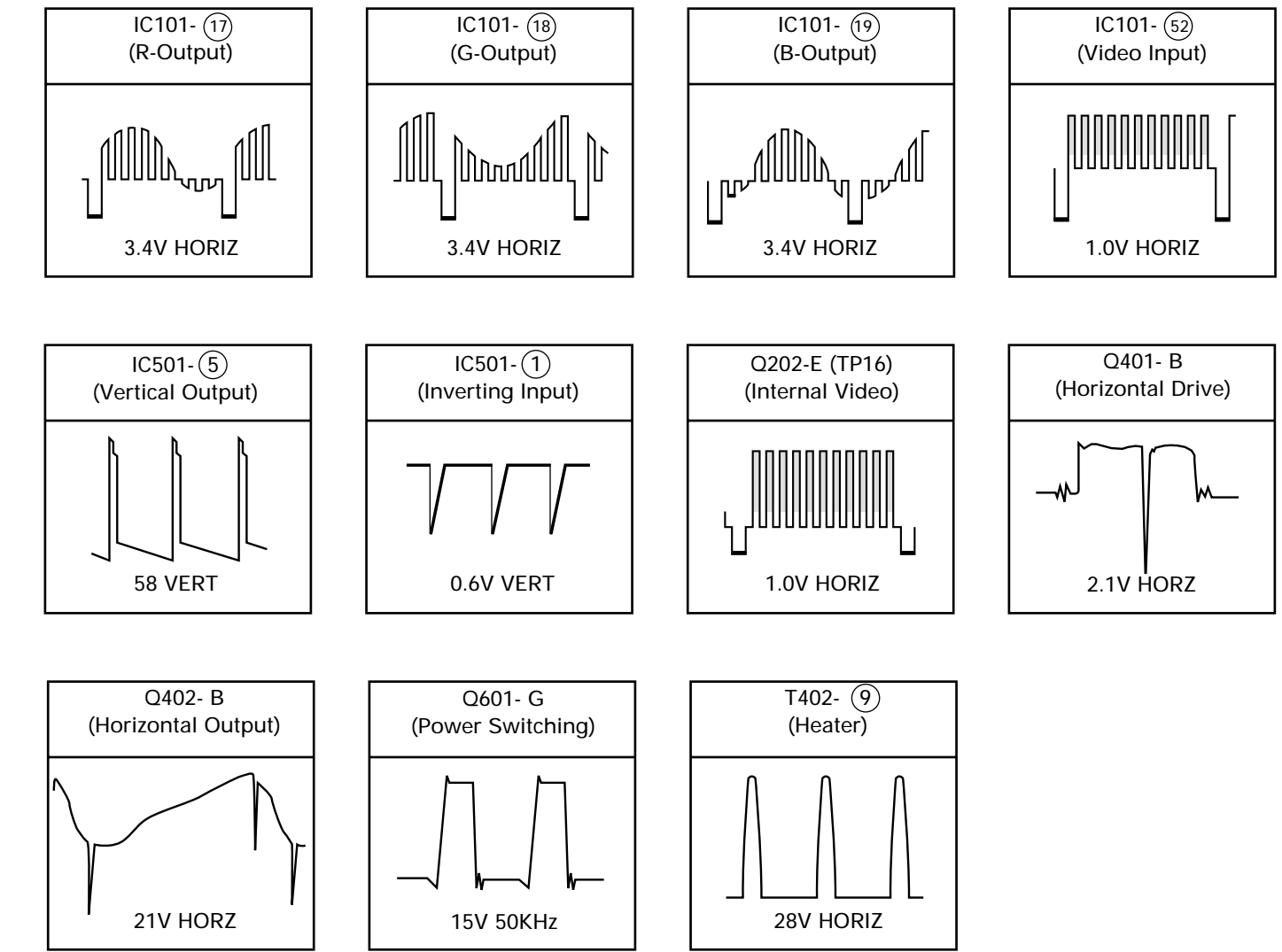
VOLTAGE CHARTS

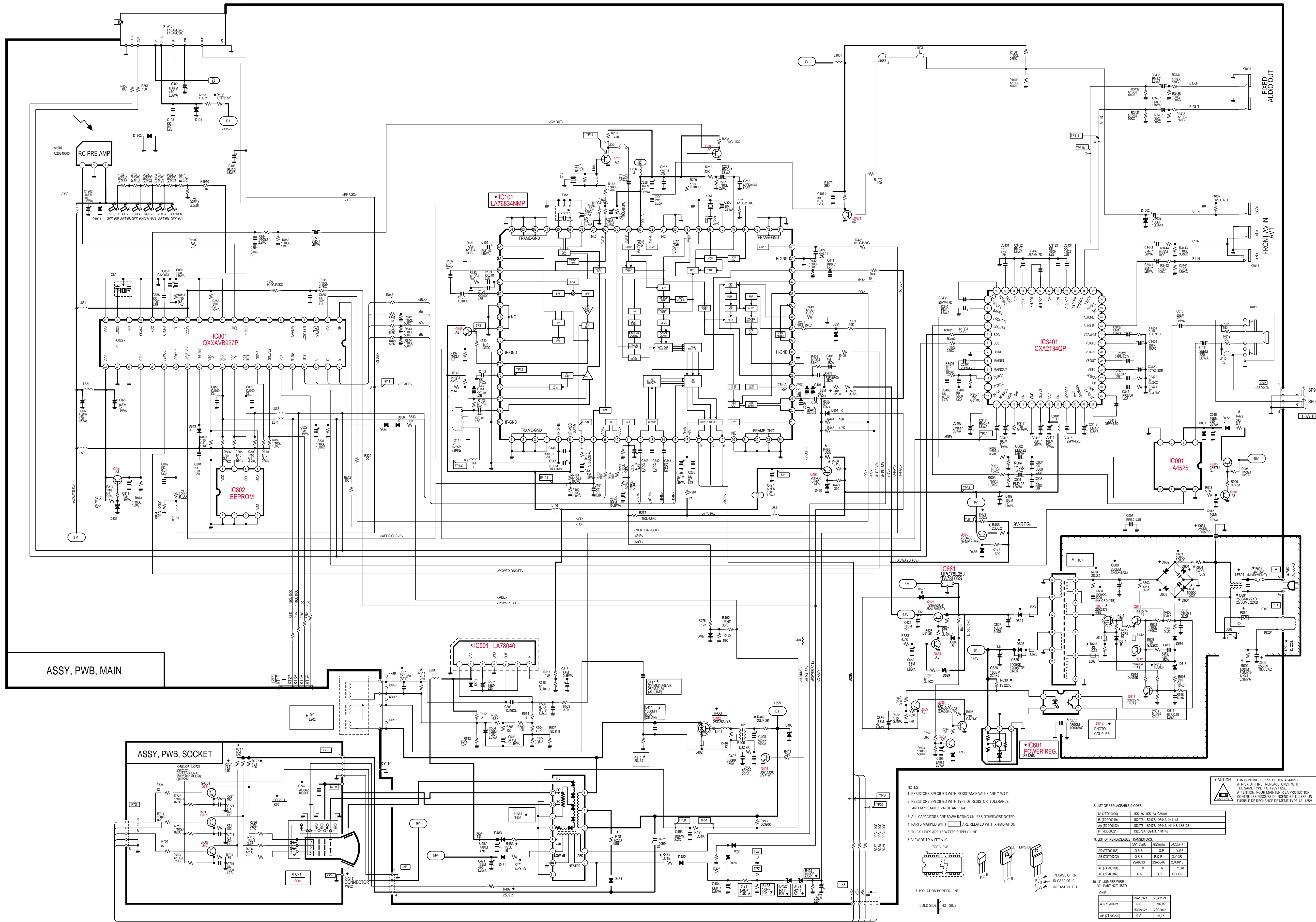
NOTE: Voltages were measured using color-bar signal and the controls set for normal picture.

Device/Pin #	Volts/Mode		Device/Pin #	Volts/Mode		Device/Pin #	Volts/Mode		Device/Pin #	Volts/Mode		Device/Pin #	Volts/Mode	
D612-1	POWER ON: 30.6	POWER OFF: 10.5	IC101-37	4.3		IC601-1	130.0		IC802-1	GND		IC3401-44	4.1	
D612-2	POWER ON: 29.5	POWER OFF: 9.4	IC101-38	4.7		IC601-2	29.2		IC802-2	GND		IC3401-45	4.2	
D612-3	POWER ON: 0.7	POWER OFF: 0.4	IC101-39	GND		IC601-3	GND		IC802-3	GND		IC3401-46	GND	
D612-4	POWER ON: 14.7	POWER OFF: 1.7	IC101-40	0		IC681-1	13.4		IC802-4	GND		IC3401-47	4.1	
IC001-1	6.7		IC101-41	GND		IC681-2	GND		IC802-5	4.9		IC3401-48	4.1	
IC001-2	15.4		IC101-42	GND		IC681-3	5.0		IC802-6	4.9		Q001-B	POWER ON: 0.7	POWER OFF: 0
IC001-3	N.C.		IC101-43	GND		IC801-1	4.0		IC802-7	GND		Q001-C	POWER ON: 0	POWER OFF: 6.3
IC001-4	GND		IC101-44	2.3		IC801-2	3.9		IC802-8	5.0		Q001-E	GND	
IC001-5	N.C.		IC101-45	3.6		IC801-3	4.9		IC802-9	4.1		Q005-B	9.6	
IC001-6	N.C.		IC101-46	2.1		IC801-4	0		IC802-10	4.1		Q005-C	10.3	
IC001-7	1.4		IC101-47	3.1		IC801-5	0		IC802-11	4.1		Q005-E	10.3	
IC001-8	GND		IC101-48	GND		IC801-6	0.3		IC802-12	4.1		Q135-B	POWER ON: 2.2	POWER OFF: 1.3
IC101-1	GND		IC101-49	2.5		IC801-7	0		IC802-13	4.1		Q135-C	POWER ON: 29.2	POWER OFF: 9.0
IC101-2	GND		IC101-50	GND		IC801-8	0		IC802-14	4.1		Q135-E	POWER ON: 1.5	POWER OFF: 1.5
IC101-3	GND		IC101-51	GND		IC801-9	0		IC802-15	4.1		Q202-B	1.7	
IC101-4	GND		IC101-52	2.6		IC801-10	4.9		IC802-16	4.1		Q202-C	GND	
IC101-5	GND		IC101-53	5.1		IC801-11	GND		IC802-17	4.1		Q202-E	2.3	
IC101-6	5.1		IC101-54	2.9		IC801-12	4.8		IC802-18	4.1		Q208-B	2.5	
IC101-7	2.1		IC101-55	2.6		IC801-13	GND		IC802-19	4.1		Q208-C	GND	
IC101-8	2.7		IC101-56	2.5		IC801-14	4.9		IC802-20	4.1		Q208-E	3.1	
IC101-9	3.8		IC101-57	GND		IC801-15	1.9		IC802-21	4.1		Q401-B	0.3	
IC101-10	3.6		IC101-58	3.6		IC801-16	0.2		IC802-22	4.1		Q401-E	17.7	
IC101-11	4.3		IC101-59	4.4		IC801-17	2.1		IC802-23	4.1		Q402-B	GND	
IC101-12	1.5		IC101-60	4.4		IC801-18	GND		IC802-24	4.1		Q402-C	N/A	
IC101-13	1.5		IC101-61	GND		IC801-19	2.2		IC802-25	4.8		Q402-E	1.1	
IC101-14	1.4		IC101-62	GND		IC801-20	2.0		IC802-26	0.3		Q486-B	9.9	
IC101-15	0.2		IC101-63	GND		IC801-21	GND		IC802-27	4.1		Q486-C	11.6	
IC101-16	8.2		IC101-64	GND		IC801-22	4.9		IC802-28	4.1		Q486-E	9.2	
IC101-17	2.5		IC101-65	2.4		IC801-23	GND		IC802-29	4.1		Q490-B	5.9	
IC101-18	2.2		IC101-66	2.2		IC801-24	GND		IC802-30	0		Q490-C	6.7	
IC101-19	2.4		IC101-67	2.2		IC801-25	4.8		IC802-31	4.1		Q490-E	5.2	
IC101-20	GND		IC101-68	0		IC801-26	0.3		IC802-32	4.1		Q601-G	POWER ON: 0.1	POWER OFF: 0.4
IC101-21	GND		IC101-69	3.2		IC801-27	POWER ON: 4.9	POWER OFF: 0	IC802-33	4.1		Q601-D	POWER ON: 15.1	POWER OFF: 164
IC101-22	GND		IC101-70	GND		IC801-28	3.9		IC802-34	4.1		Q601-S	POWER ON: 5.6	POWER OFF: 0
IC101-23	GND		IC101-71	GND		IC801-29	2.6		IC802-35	4.1		Q611-B	POWER ON: 4.6	POWER OFF: 0.8
IC101-24	GND		IC101-72	GND		IC801-30	0		IC802-36	4.1		Q611-C	POWER ON: 14.4	POWER OFF: 1.7
IC101-25	N.C.		IC101-73	2.3		IC801-31	4.9		IC802-37	4.1		Q611-E	POWER ON: 5.6	POWER OFF: 0.4
IC101-26	N.C.		IC101-74	GND		IC801-32	3.6		IC802-38	4.1		Q612-B	POWER ON: 4.6	POWER OFF: 0.8
IC101-27	2.6		IC101-75	2.2		IC801-33	4.9		IC802-39	4.1		Q612-C	GND	
IC101-28	5.3		IC101-76	2.4		IC801-34	3.7		IC802-40	4.1		Q612-E	POWER ON: 5.6	POWER OFF: 0.4
IC101-29	2.7		IC101-77	2.2		IC801-35	4.8		IC802-41	4.1				
IC101-30	0.4		IC101-78	2.9		IC801-36	4.9		IC802-42	GND				
IC101-31	GND		IC101-79	2.9		IC801-37	4.9		IC802-43	4.1				
IC101-32	N.C.		IC101-80	GND		IC801-38	4.8							
IC101-33	1.0		IC501-1	2.5		IC801-39	0.2							
IC101-34	1.8		IC501-2	25.9		IC801-40	0							
IC101-35	N.C.		IC501-3	2.9		IC801-41	0							
IC101-36	5.0		IC501-4	GND		IC801-42	0							
			IC501-5	11.5										
			IC501-6	26.5										
			IC501-7	2.6										

WAVEFORMS

Note: Voltages were measured with offset color-bar signal and controls set for normal picture.





NOTES:

1. RESISTORS SPECIFIED WITH RESISTANCE VALUE ARE 1/8W.
2. RESISTORS SPECIFIED WITH TYPE OF RESISTOR, TOLERANCE AND RESISTANCE VALUE ARE 1/4W.
3. ALL CAPACITORS ARE 50VWV UNLESS OTHERWISE NOTED.
4. PARTS MARKED WITH * ARE RELATED WITH X-RADIATION.
5. THICK LINES ARE 15 WATTS SUPPLY LINE.

7. ISOLATION BORDER LINE.

COLD SIDE HOT SIDE

IMPORTANT: SCHEMATIC PART LOCATION NUMBERS MAY NOT ALWAYS MATCH THE SCHEMATIC SYMBOLS. THE SCHEMATIC SYMBOLS AND PART DESCRIPTIONS ARE CORRECT AND SHOULD BE USED. THE PART DESCRIPTIONS WILL BE LISTED UNDER THE LOCATION NUMBER IN THE PARTS LIST.

CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE AND 125V FUSE. ATTENTION: POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D'INCENDIE, UTILISER UN FUSIBLE DE RECHARGE DE MÊME TYPE 4A, 125V.

8. LIST OF REPLACEABLE DIODES

M (7200020)	1S817H	1S813X	GM401
R (7200019)	1S207H	1S247J	DS442, 1N4148
SA (7200018)	1S207H	1S247J	DS442, 1N4148, 1N4138
P (7200021)	1S207H	1S247J	1N4148

9. LIST OF REPLACEABLE TRANSISTORS

AE (7200103)	2SC1740B	2SC245A	2SC1815
AE (7200102)	Q1.S.S	C3P	C1Y.GR
AE (7200102)	Q1.S.S	R.O.P	C1Y.GR
AE (7200102)	2SA433D	2SA464A	2SA1015
AB (7200181)	R	R	Y.GR
AE (7200102)	Q1.S.S	Q1.R	Q1.Y.GR

10. JUMPER WIRE: * PART NOT USED.

Notice



- CORRECTION PRODUCTION CHANGE
 SERVICE FLASH ADD INFORMATION

FILE NO.

REVISION 4

Please add this notice to the Service Manual listed below.

Category: <u>COLOR TELEVISION</u>	Date: <u>JULY / 26 / 2001</u>
Model: <u>DS19500</u>	Effective from: Chassis No. <u>19500-04</u>
Destination: <u>U.S.A. / CANADA</u>	REF: No. <u>SM5110088</u>

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. **If the Service Manual Chassis No. does not match the unit's**, additional Service Literature is required. This chassis is similar to Chassis No. 19500-00. Only the **Difference** Service Information is given in this manual. For detailed Service Information, refer to the **Original** Service Manual and **Notices** for Chassis No. 19500-00 used in Model DS19500 (SM5110088).

1. IN THE SERVICE ADJUSTMENTS LIST PAGE 3

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu NO. 01 HP (H Phase), NO. 13 TDS (Trap & D SW), NO. 24 AG (AFC Gain), NO. 26 SCO (Sub-Color), NO. 27 STI (Sub-Tint), NO. 28 SSH (Sub-Sharpness), NO. 29 OPT (Option 1), NO. 30 OP2 (Option 2), NO. 31 HR (OSD Display H-Position), **NO. 60 R00 (ROM Data 0), NO. 61 R01 (ROM Data 1), NO. 64 R04 (ROM Data 4), NO. 68 R08 (ROM Data 8), NO. 70 R10 (ROM Data 10), NO. 71 R11 (ROM Data 11), NO. 72 R12 (ROM Data 12), NO. 73 R13 (ROM Data 13), NO. 74 R14 (ROM Data 14), NO. 75 R15 (ROM Data 15), NO. 76 R16 (ROM Data 16), NO. 77 R17 (ROM Data 17), NO. 78 R18 (ROM Data 18) and NO. 132 R72 (ROM Data 72)** should be set up for proper TV operation before attempting the service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select NO. 01 HP (H Phase) with ▲ or ▼ key. Adjust the data with + or – key for 18.
4. Select NO. 13 TDS (Trap & D SW) with ▲ or ▼ key. Adjust the data with + or – key for 1.
5. Select NO. 24 AG (AFC Gain) with ▲ or ▼ key. Adjust the data with + or – key for 0.
6. Select NO. 26 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 7.
7. Select NO. 27 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 21.
8. Select NO. 28 SSH (Sub Sharpness) with ▲ or ▼ key. Adjust the data with + or – key for 10.
9. Select NO. 29 OPT (Option 1) with ▲ or ▼ key. Adjust the data with + or – key for 100.
10. Select NO. 30 OP2 (Option 2) with ▲ or ▼ key. Adjust the data with + or – key for 0.
11. Select NO. 31 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or – key for 30.
- 11a. **Select NO. 60 R00 (ROM Data 0) to NO. 132 R72 (ROM Data 72) with ▲ or ▼ key and adjust each of the data with + or – key as specified in Table 1 in the following pages.**
12. Press the MENU key to turn off the Service Menu display.

Note: The change in Initial Bus Data Setup above is also effective in Chassis No. **19500-01**.

1. IN THE SERVICE ADJUSTMENTS LIST (Continued)

PAGE 4

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
01	HP	15	18*	0~31	Horizontal Phase (Horizontal Centering)
02	IAS	0	0	0, 1	IF AGC Switch 0: TV (Normal) 1: AV (IF Gain Minimum)
03	RAD	25	25	0~63	RF AGC Delay
04	PT	64	64	0~127	PLL Tuning
05	ADA	31	31	0~63	APC Detect Adjust
06	CD	0	0	0, 1	C-Diff
07	VS	32	32	0~63	Vertical Size
08	RB	0	0	0~255	Red Bias
09	GB	0	0	0~255	Green Bias
10	BB	0	0	0~255	Blue Bias
11	RD	60	60	0~127	Red Drive
12	BD	60	60	0~127	Blue Drive
13	TDS	0	1*	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
14	AF	0	0	0, 1	Auto Flesh 0: OFF 1: ON
15	BS	0	0	0, 1	Black Stretch 1: OFF 0: ON
16	VL	4	4	0~7	Video Level
17	FL	15	15	0~31	FM Level
18	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 1: OFF 0: ON
19	ABL	1	1	0,1	ABL Defeat 0: OFF 1: ON
20	WP	1	1	0,1	White Peak Limiter 1: OFF 0: ON
21	GD	7	7	0~15	Green Drive Reduction
22	VC	0	0	0~7	Vert. Comp
23	VD	32	32	0~63	Vert. DC
24	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
25	SB	32	32	0~63	Sub-Brightness
26	SCO	10	7*	0~31	Sub-Color
27	STI	14	21*	0~31	Sub-Tint
28	SSH	8	10*	0~15	Sub-Sharpness
29	OPT	32	100*	0~255	Option 1 (See Note 1 page 5.)
30	OP2	64	0*	0~255	Option 2 (See Note 2 page 5.)
31	HR	43	30*	0~63	H-Position (OSD H-Position)
32	ATT	15	15	0~15	Attenuation
33	STE	N/A	N/A	N/A	N/A
34	FIL	N/A	N/A	N/A	N/A
35	WDB	32	32	0~32	Wide Band
36	SPC	32	32	0~32	Spectral
37	SPV	N/A	N/A	N/A	N/A
38	SBO	5	5	0~255	Sub Bright Offset
39	PCO	N/A	N/A	N/A	N/A
40	PTI	N/A	N/A	N/A	N/A
41	PUV	N/A	N/A	N/A	N/A
42	PDV	N/A	N/A	N/A	N/A
43	PLH	N/A	N/A	N/A	N/A
44	PRH	N/A	N/A	N/A	N/A
45	PCN	N/A	N/A	N/A	N/A
46	PBS	N/A	N/A	N/A	N/A
47	DRV	—	—	0~127	Red drive Adjustment (See Note 3 page 5.)
		—	—	0~127	Blue Drive Adjustment (See Note 3 page 5.)
48	—	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)
60	R00	0	231*	0~255	ROM Data 0
61	R01	0	151*	0~255	ROM Data 1
62	R02	0	0	0~255	ROM Data 2

Table 1. ON-SCREEN SERVICE MENU (Continued)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
63	R03	0	0	0~255	ROM Data 3
64	R04	0	1*	0~255	ROM Data 4
65	R05	0	0	0~255	ROM Data 5
66	R06	0	0	0~255	ROM Data 6
67	R07	0	0	0~255	ROM Data 7
68	R08	0	169*	0~255	ROM Data 8
69	R09	0	0	0~255	ROM Data 9
70	R10	0	231*	0~255	ROM Data 10
71	R11	0	103*	0~255	ROM Data 11
72	R12	0	3*	0~255	ROM Data 12
73	R13	0	173*	0~255	ROM Data 13
74	R14	0	48*	0~255	ROM Data 14
75	R15	0	1*	0~255	ROM Data 15
76	R16	0	76*	0~255	ROM Data 16
77	R17	0	154*	0~255	ROM Data 17
78	R18	0	231*	0~255	ROM Data 18
79	R19	0	0	0~255	ROM Data 19
↓	↓	↓	↓	↓	↓
131	R71	0	0	0~255	ROM Data 71
132	R72	0	180*	0~255	ROM Data 72

2. IN THE PURITY AND CONVERGENCE ADJUSTMENTS LIST PAGE 10

PURITY ADJUSTMENT

1. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly. See Figure 1. Position the picture tube facing east or west. Demagnetize the picture tube and receiver using an external degaussing coil. Set receiver to Service Menu NO. 48 (no vertical sweep) while degaussing.
2. Place the yoke on tube neck fully against glass.
- 2a. **Place the CPM on the tube neck aligning the center of the purity magnet tabs (2 pole) over center of Focus Gap (G3 & G4). See Figure 2.**
3. Connect a color bar generator to the antenna terminal. Switch the generator to a white field. Move yoke backward on the neck until a uniform white field is obtained.
4. Allow 30 minutes warm up on a blank white field (high intensity grayscale).

Note: If white field cannot be obtained, check Grayscale Adjustments on page 6.
5. Set the picture controls to the Auto levels. Select a green raster, either with the signal generator or by adjusting the bias controls. If a signal generator is used for this step, Skip to Step 10. If the bias controls will be used, go to step 6.
6. Adjust Service Menu NO. 08 RB (R-Bias), NO. 09 GB (G-Bias), and NO. 10 BB (B-Bias) data to 0 each.
7. Select Service Menu NO. 48 (no vertical sweep).
8. Adjust the screen control counterclockwise until the horizontal scan lines is no longer visible.
9. Select Service Menu NO. 09 GB (G-Bias) and raise the data to produce green raster. If retrace lines appear, reduce screen control slightly.
10. Pull yoke back on the tube neck to obtain three-color raster (blue, green and red).
11. Adjust the angle between the two purity magnet tabs to center the vertical green belt in the picture tube. Do not rotate tabs. See Figure 3.
12. Slowly slide the deflection yoke forward until a uniform green screen is obtained.
13. Check the purity of the red and blue screens for uniformity. Turn off other colors to check (use bias controls) or use generator. If necessary, readjust the yoke position until all screens are pure.
14. If bias controls and screen control were used to set purity, reset Grayscale and Brightness Level. Refer to Grayscale Adjustment on page 6 and Brightness Level Adjustment on page 7.
15. Confirm that the yoke is not tilted. Tighten the yoke mounting screw. Adjust convergence next.

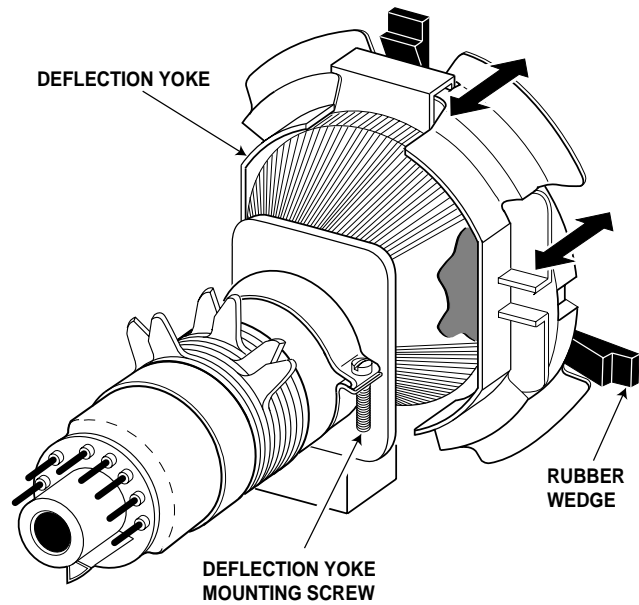


Figure 1. Deflection Yoke Movement

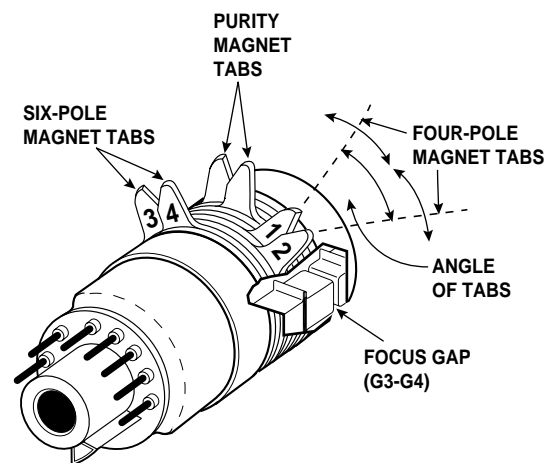


Figure 2. Purity and Convergence Magnets

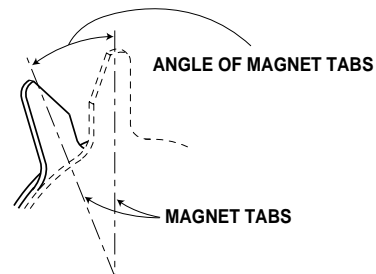


Figure 3. Adjusting Magnet

3. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A : Misprint B : Quality Reliability C : Standardization
 D : Design E : Add as a possible sub F : Schematic location change
 G : Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchangeability	Reason
Page 14, Chassis Electrical Parts List	★C411	Old	403 353 4303 404 077 4303	MT-POLYPRO 7100P H 1.5K MT-POLYPRO 7100P H 1.5K	1	NO	D
		New	403 343 8304 404 077 4709	MT-POLYPRO 8000P H 1.5K MT-POLYPRO 8000P H 1.5K	1	NO	
	★C417	Old	403 346 7304 404 081 2906	MT-POLYPRO 0.36U J 250V MT-POLYPRO 0.36U M 200V	1	NO	D
		New	403 346 7007 404 081 2500	MT-POLYPRO 0.24U J 250V MT-POLYPRO 0.24U M 200V	1	NO	
	C628	Old	404 080 0606	ELECT 100U M 160V	1	NO	D
		New	404 073 9005	ELECT 220U M 160V	1	NO	
C711	Old	403 070 8806	CERAMIC 1500P K 50V	1	NO	B	
	New	403 073 4803	CERAMIC 820P K 50V	1	YES		
Page 15, Chassis Electrical Parts List	★IC501	Old	409 340 1904	IC LA7841	1	YES	E
		New	409 340 1805 409 340 1904	IC LA7840 IC LA7841	1	YES	
	IC802	Old	409 333 3700 409 376 1503 409 470 3304	IC 24LC02B/P IC ST24C02B6 IC KS24C021C	1	YES	G
		New	409 333 3700 409 376 1503 409 440 8902 409 495 6908 409 497 0706	IC 24LC02B/P IC ST24C02B6 IC M24C02-BN6 IC CAT24WC02P IC S524C20D21-DCB0	1	YES	
————	J111, J112	Old		NOT USED		NO	B
		New		WIRE LEAD	2	YES	
Page 16, Chassis Electrical Parts List	★LF601	Old	610 031 5938 610 031 6089 610 031 6096 610 031 6119 610 031 6126 610 223 1212	LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER	1	YES	E
		New	610 031 5938 610 031 6089 610 031 6096 610 031 6119 610 031 6126 610 223 1212 610 290 3027	LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER	1	YES	
	L164	Old	645 008 2733 645 016 2596	INDUCTOR, 12U K INDUCTOR, 12U K	1	NO	D, G
		New	645 003 9713 645 016 2657	INDUCTOR, 15U K INDUCTOR, 15U K	1	NO	
	★L902	Old	610 238 2846 610 238 2853	DEFLECTION YOKE DEFLECTION YOKE	1	NO	D
		New	645 026 3927	YOKE, DEFLECTION	1	NO	
Page 17, Chassis Electrical Parts List	Q695	Old	405 001 7605 405 004 3208 405 004 4809	TR 2SA1015-Y(SAN) TR 2SA564A-R(CU) TR 2SA608-F-CTV-NP	1	YES	E, G
		New	405 001 7605 405 004 3208 405 004 4809 405 151 3304	TR 2SA1015-Y(SAN) TR 2SA564A-R(CU) TR 2SA608-F-CTV-NP TR 2SA608NF-NPA	1	YES	

3. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A : Misprint B : Quality Reliability C : Standardization
 D : Design E : Add as a possible sub F : Schematic location change
 G : Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchangeability	Reason
Page 18, Chassis Electrical Parts List	R163	Old	401 037 9101	MT-GLAZE 180 JA 1/10W	1	NO	D, G
		New	401 038 0602	MT-GLAZE 220 JA 1/10W	1	NO	
—————	★R411	Old		NOT USED	1	NO	B, D
		New	402 083 1804	OXIDE-MT 2.7 JB 7W	1	YES	
Page 18, Chassis Electrical Parts List	★R412	Old	401 066 3705	OXIDE-MT 2.7 JA 2W	1	NO	B, D
		New		NOT USED	1	YES	
Page 19, Chassis Electrical Parts List	★R497	Old	401 064 5701	OXIDE-MT 1.8 JA 2W	1	NO	D
		New	401 066 3002	OXIDE-MT 2.2 JA 2W	1	NO	
	R504	Old	401 026 9907	CARBON 4.7K JA 1/6W	1	NO	D
		New	401 027 2600	CARBON 5.6K JA 1/6W	1	NO	
Page 20, Chassis Electrical Parts List	T401	Old	610 000 7901 610 000 7918	DRIVE TRANS DRIVE TRANS	1	YES	E
		New	610 000 7901 610 000 7918 645 047 2015	DRIVE TRANS DRIVE TRANS TRANS, DRIVE	1	YES	
	★T402	Old	645 038 1676	TRANS, FLYBACK	1	YES	E
		New	645 038 1676 645 043 3825	TRANS, FLYBACK TRANS, FLYBACK	1	YES	
	X141	Old	421 006 8904	SAW F OFWM1862M	1	NO	D, G
		New		NOT USED		NO	
—————	X141A	Old		NOT USED		NO	D, G
		New	421 006 3206 421 008 9008 421 009 2909	SAW F TSF5221P SAW F TSF5235P SAW F TSF5235P2	1	NO	
Page 20, Chassis Electrical Parts List	A001	Old	610 282 6500	ASSY, PWB, MAIN	1	NO	D
		New	610 281 6815	ASSY, PWB, MAIN	1	NO	
	★A101	Old	645 040 5143	TUNER, U/V	1	YES	E
		New	645 038 5841 645 040 5143	TUNER, U/V TUNER, U/V	1	YES	
			645 042 1983 645 042 2003	TUNER, U/V TUNER, U/V			
	★Q901	Old	413 007 6201 413 007 7901	CRT A48AAB37X CRT A48AAB37X	1	NO	D
New		414 009 3205	CRT A48KRD82X(DT)	1	NO		
—————	Q901C	Old		NOT USED		NO	D
		New	610 217 7794	CG PURITY MAGNET	1	NO	
Page 20, Chassis Electrical Parts List	★W902	Old	610 284 9233	ASSY, WIRE GND CONNECTOR	1	YES	E
		New	610 284 9233 610 287 6598	ASSY, WIRE GND CONNECTOR ASSY, WIRE GND CONNECTOR	1	YES	

4. IN THE ACCESSORY PARTS LIST
PAGE 21

KEY NO.	MODEL DS19500 (Chassis No. 19500-00)		MODEL DS19500 (Chassis No. 19500-04)	
	Part No.	Description	Part No.	Description
	610 282 3448	OWNER'S MANUAL	610 289 3038	OWNER'S MANUAL
	645 041 2509	ASSY, RC TRANSMITTER	645 045 4301	ASSY, RC TRANSMITTER
			645 045 4318	ASSY, RC TRANSMITTER
	610 285 1519	RC-BATTERY COVER	610 290 1221	RC-BATTERY COVER
			610 290 1283	RC-BATTERY COVER

For parts or service contact

SANYO Fisher Service Corporation

**21605 Plummer Street,
Chatsworth, CA 91311 (U.S.A.)**

**300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)**

July / 2001 / 2200 SMC

Printed in U.S.A.

Notice



- CORRECTION PRODUCTION CHANGE
 SERVICE FLASH ADD INFORMATION

FILE NO.

REVISION 3

Please add this notice to the Service Manual listed below.

Category: <u>COLOR TELEVISION</u>	Date: <u>JULY / 26 / 2001</u>
Model: <u>DS19500</u>	Effective from: Chassis No. <u>19500-03</u> ←
Destination: <u>U.S.A. / CANADA</u>	REF: No. <u>SM5110088</u>

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. **If the Service Manual Chassis No. does not match the unit's**, additional Service Literature is required. This chassis is similar to Chassis No. 19500-00. Only the **Difference** Service Information is given in this manual. For detailed Service Information, refer to the **Original** Service Manual and **Notices** for Chassis No. 19500-00 used in Model DS19500 (SM5110088).

1. IN THE SERVICE ADJUSTMENTS LIST PAGE 3

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu NO. 01 HP (H Phase), NO. 13 TDS (Trap & D SW), NO. 24 AG (AFC Gain), NO. 26 SCO (Sub-Color), NO. 27 STI (Sub-Tint), NO. 28 SSH (Sub-Sharpness), NO. 29 OPT (Option 1), NO. 30 OP2 (Option 2), NO. 31 HR (OSD Display H-Position), **NO. 60 R00 (ROM Data 0), NO. 61 R01 (ROM Data 1), NO. 64 R04 (ROM Data 4), NO. 68 R08 (ROM Data 8), NO. 70 R10 (ROM Data 10), NO. 71 R11 (ROM Data 11), NO. 72 R12 (ROM Data 12), NO. 73 R13 (ROM Data 13), NO. 74 R14 (ROM Data 14), NO. 75 R15 (ROM Data 15), NO. 76 R16 (ROM Data 16), NO. 77 R17 (ROM Data 17), NO. 78 R18 (ROM Data 18) and NO. 132 R72 (ROM Data 72)** should be set up for proper TV operation before attempting the service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select NO. 01 HP (H Phase) with ▲ or ▼ key. Adjust the data with + or – key for 18.
4. Select NO. 13 TDS (Trap & D SW) with ▲ or ▼ key. Adjust the data with + or – key for 1.
5. Select NO. 24 AG (AFC Gain) with ▲ or ▼ key. Adjust the data with + or – key for 0.
6. Select NO. 26 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 7.
7. Select NO. 27 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 19.
8. Select NO. 28 SSH (Sub Sharpness) with ▲ or ▼ key. Adjust the data with + or – key for 10.
9. Select NO. 29 OPT (Option 1) with ▲ or ▼ key. Adjust the data with + or – key for 100.
10. Select NO. 30 OP2 (Option 2) with ▲ or ▼ key. Adjust the data with + or – key for 0.
11. Select NO. 31 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or – key for 30.
- 11a. **Select NO. 60 R00 (ROM Data 0) to NO. 132 R72 (ROM Data 72) with ▲ or ▼ key and adjust each of the data with + or – key as specified in Table 1 in the following pages.**
12. Press the MENU key to turn off the Service Menu display.

Note: The change in Initial Bus Data Setup above is also effective in Chassis No. **19500-00**.

1. IN THE SERVICE ADJUSTMENTS LIST (Continued)

PAGE 4

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
01	HP	15	18*	0~31	Horizontal Phase (Horizontal Centering)
02	IAS	0	0	0, 1	IF AGC Switch 0: TV (Normal) 1: AV (IF Gain Minimum)
03	RAD	25	25	0~63	RF AGC Delay
04	PT	64	64	0~127	PLL Tuning
05	ADA	31	31	0~63	APC Detect Adjust
06	CD	0	0	0, 1	C-Diff
07	VS	32	32	0~63	Vertical Size
08	RB	0	0	0~255	Red Bias
09	GB	0	0	0~255	Green Bias
10	BB	0	0	0~255	Blue Bias
11	RD	60	60	0~127	Red Drive
12	BD	60	60	0~127	Blue Drive
13	TDS	0	1*	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
14	AF	0	0	0, 1	Auto Flesh 0: OFF 1: ON
15	BS	0	0	0, 1	Black Stretch 1: OFF 0: ON
16	VL	4	4	0~7	Video Level
17	FL	15	15	0~31	FM Level
18	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 1: OFF 0: ON
19	ABL	1	1	0,1	ABL Defeat 0: OFF 1: ON
20	WP	1	1	0,1	White Peak Limiter 1: OFF 0: ON
21	GD	7	7	0~15	Green Drive Reduction
22	VC	0	0	0~7	Vert. Comp
23	VD	32	32	0~63	Vert. DC
24	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
25	SB	32	32	0~63	Sub-Brightness
26	SCO	10	7*	0~31	Sub-Color
27	STI	14	19*	0~31	Sub-Tint
28	SSH	8	10*	0~15	Sub-Sharpness
29	OPT	32	100*	0~255	Option 1 (See Note 1 page 5.)
30	OP2	64	0*	0~255	Option 2 (See Note 2 page 5.)
31	HR	43	30*	0~63	H-Position (OSD H-Position)
32	ATT	15	15	0~15	Attenuation
33	STE	N/A	N/A	N/A	N/A
34	FIL	N/A	N/A	N/A	N/A
35	WDB	32	32	0~32	Wide Band
36	SPC	32	32	0~32	Spectral
37	SPV	N/A	N/A	N/A	N/A
38	SBO	5	5	0~255	Sub Bright Offset
39	PCO	N/A	N/A	N/A	N/A
40	PTI	N/A	N/A	N/A	N/A
41	PUV	N/A	N/A	N/A	N/A
42	PDV	N/A	N/A	N/A	N/A
43	PLH	N/A	N/A	N/A	N/A
44	PRH	N/A	N/A	N/A	N/A
45	PCN	N/A	N/A	N/A	N/A
46	PBS	N/A	N/A	N/A	N/A
47	DRV	—	—	0~127	Red drive Adjustment (See Note 3 page 5.)
		—	—	0~127	Blue Drive Adjustment (See Note 3 page 5.)
48	—	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)
60	R00	0	231*	0~255	ROM Data 0
61	R01	0	151*	0~255	ROM Data 1
62	R02	0	0	0~255	ROM Data 2

Table 1. ON-SCREEN SERVICE MENU (Continued)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
63	R03	0	0	0~255	ROM Data 3
64	R04	0	1*	0~255	ROM Data 4
65	R05	0	0	0~255	ROM Data 5
66	R06	0	0	0~255	ROM Data 6
67	R07	0	0	0~255	ROM Data 7
68	R08	0	169*	0~255	ROM Data 8
69	R09	0	0	0~255	ROM Data 9
70	R10	0	231*	0~255	ROM Data 10
71	R11	0	103*	0~255	ROM Data 11
72	R12	0	3*	0~255	ROM Data 12
73	R13	0	173*	0~255	ROM Data 13
74	R14	0	48*	0~255	ROM Data 14
75	R15	0	1*	0~255	ROM Data 15
76	R16	0	76*	0~255	ROM Data 16
77	R17	0	154*	0~255	ROM Data 17
78	R18	0	231*	0~255	ROM Data 18
79	R19	0	0	0~255	ROM Data 19
↓	↓	↓	↓	↓	↓
131	R71	0	0	0~255	ROM Data 71
132	R72	0	180*	0~255	ROM Data 72

**2. IN THE SERVICE ADJUSTMENTS LIST
PAGE 6**

VERTICAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the vertical center of TV screen. If picture center is too low, **replace resistor R513 (2.2K ohm, 1/2W) with 470 ohm, 1W**. If picture center is too high, connect resistor R512 (470 ohm, 1W).

Note: The change in Vertical Centering Adjustment above is also effective in Chassis No. **19500-00**.

3. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

A : Misprint B : Quality Reliability C : Standardization
 D : Design E : Add as a possible sub F : Schematic location change
 G : Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchangeability	Reason	
Page 14, Chassis Electrical Parts List	C711	Old	403 070 8806	CERAMIC 1500P K 50V	1	NO	B	
		New	403 073 4803	CERAMIC 820P K 50V	1	YES		
Page 15, Chassis Electrical Parts List	★IC501	Old	409 340 1904	IC LA7841	1	YES	E	
		New	409 340 1805 409 340 1904	IC LA7840 IC LA7841	1	YES		
	IC802	Old	409 333 3700 409 376 1503 409 470 3304	IC 24LC02B/P IC ST24C02B6 IC KS24C021C	1	YES	G	
		New	409 333 3700 409 376 1503 409 440 8902 409 495 6908 409 497 0706	IC 24LC02B/P IC ST24C02B6 IC M24C02-BN6 IC CAT24WC02P IC S524C20D21-DCB0	1	YES		
————	J111, J112	Old		NOT USED		NO	B	
		New		WIRE LEAD	2	YES		
Page 16, Chassis Electrical Parts List	★LF601	Old	610 031 5938 610 031 6089 610 031 6096 610 031 6119 610 031 6126 610 223 1212	LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER	1	YES	E	
		New	610 031 5938 610 031 6089 610 031 6096 610 031 6119 610 031 6126 610 223 1212 610 290 3027	LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER LINE FILTER	1	YES		
	L164	Old	645 008 2733 645 016 2596	INDUCTOR, 12U K INDUCTOR, 12U K	1	NO	D, G	
		New	645 003 9713 645 016 2657	INDUCTOR, 15U K INDUCTOR, 15U K	1	NO		
	Page 17, Chassis Electrical Parts List	Q695	Old	405 001 7605 405 004 3208 405 004 4809	TR 2SA1015-Y(SAN) TR 2SA564A-R(CU) TR 2SA608-F-CTV-NP	1	YES	E, G
			New	405 001 7605 405 004 3208 405 004 4809 405 151 3304	TR 2SA1015-Y(SAN) TR 2SA564A-R(CU) TR 2SA608-F-CTV-NP TR 2SA608NF-NPA	1	YES	
Page 18, Chassis Electrical Parts List	R163	Old	401 037 9101	MT-GLAZE 180 JA 1/10W	1	NO	D, G	
		New	401 038 0602	MT-GLAZE 220 JA 1/10W	1	NO		
————	★R411	Old		NOT USED	1	NO	B, D	
		New	402 083 1804	OXIDE-MT 2.7 JB 7W	1	YES		
Page 18, Chassis Electrical Parts List	★R412	Old	401 066 3705	OXIDE-MT 2.7 JA 2W	1	NO	B, D	
		New		NOT USED	1	YES		
————	R513	Old		NOT USED	1	NO	B	
		New	401 008 7501	CARBON 2.2K JA 1/2W	1	YES		

3. IN THE CHASSIS ELECTRICAL PARTS LIST (Continued)

The reason for change.

A : Misprint B : Quality Reliability C : Standardization
 D : Design E : Add as a possible sub F : Schematic location change
 G : Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchangeability	Reason
Page 20, Chassis Electrical Parts List	T401	Old	610 000 7901 610 000 7918	DRIVE TRANS DRIVE TRANS	1	YES	E
		New	610 000 7901 610 000 7918 645 047 2015	DRIVE TRANS DRIVE TRANS TRANS, DRIVE	1	YES	
	★T402	Old	645 038 1676	TRANS, FLYBACK	1	YES	E
		New	645 038 1676 645 043 3825	TRANS, FLYBACK TRANS, FLYBACK	1	YES	
	X141	Old	421 006 8904	SAW F OFWM1862M	1	NO	D, G
		New		NOT USED		NO	
_____	X141A	Old		NOT USED		NO	D, G
		New	421 006 3206 421 008 9008 421 009 2909	SAW F TSF5221P SAW F TSF5235P SAW F TSF5235P2	1	NO	
Page 20, Chassis Electrical Parts List	★A101	Old	645 040 5143	TUNER, U/V	1	YES	E
		New	645 038 5841 645 040 5143 645 042 1983 645 042 2003	TUNER, U/V TUNER, U/V TUNER, U/V TUNER, U/V	1	YES	
	★W902	Old	610 284 9233	ASSY, WIRE GND CONNECTOR	1	YES	E
		New	610 284 9233 610 287 6598	ASSY, WIRE GND CONNECTOR ASSY, WIRE GND CONNECTOR	1	YES	

4. IN THE ACCESSORY PARTS LIST PAGE 21

KEY NO.	MODEL DS19500 (Chassis No. 19500-00)		MODEL DS19500 (Chassis No. 19500-03)	
	Part No.	Description	Part No.	Description
	610 282 3448	OWNER'S MANUAL	610 289 3038	OWNER'S MANUAL
	645 041 2509	ASSY, RC TRANSMITTER	645 045 4301	ASSY, RC TRANSMITTER
			645 045 4318	ASSY, RC TRANSMITTER
	610 285 1519	RC-BATTERY COVER	610 290 1221	RC-BATTERY COVER
			610 290 1283	RC-BATTERY COVER

For parts or service contact

SANYO Fisher Service Corporation

**21605 Plummer Street,
Chatsworth, CA 91311 (U.S.A.)**

**300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)**

July / 2001 / 2200 SMC

Printed in U.S.A.

Notice



- CORRECTION PRODUCTION CHANGE
 SERVICE FLASH ADD INFORMATION

FILE NO.

REVISION 1

Please add this notice to the Service Manual listed below.

Category: <u> COLOR TELEVISION </u>	Date: <u> MAY / 16 / 2000 </u>
Model: <u> DS19500 </u>	Effective from: Chassis No. <u> 19500-01 </u>
Destination: <u> U.S.A. </u>	REF: No. <u> SM5110088 </u>

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual. **If the Service Manual Chassis No. does not match the unit's**, additional Service Literature is required. This chassis is similar to Chassis No. 19500-00. Only the **Difference** Service Information is given in this manual. For detailed Service Information, refer to the **Original** Service Manual and **Notices** for Chassis No. 19500-00 used in Model DS19500 (SM5110088).

1. IN THE SERVICE ADJUSTMENTS LIST PAGE 3

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, the Service Menu NO. 01 HP (H Phase), NO. 13 TDS (Trap & D SW), NO. 24 AG (AFC Gain), NO. 26 SCO (Sub-Color), NO. 27 STI (Sub-Tint), NO. 28 SSH (Sub-Sharpness), NO. 29 OPT (Option 1), NO. 30 OP2 (Option 2), and NO. 31 HR (OSD Display H-Position) should be set up for proper TV operation before attempting the service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select NO. 01 HP (H Phase) with ▲ or ▼ key. Adjust the data with + or – key for 18.
4. Select NO. 13 TDS (Trap & D SW) with ▲ or ▼ key. Adjust the data with + or – key for 1.
5. Select NO. 24 AG (AFC Gain), with ▲ or ▼ key. Adjust the data with + or – key for 0.
6. Select NO. 26 SCO (Sub Color) with ▲ or ▼ key. Adjust the data with + or – key for 7.
7. **Select NO. 27 STI (Sub Tint) with ▲ or ▼ key. Adjust the data with + or – key for 21.**
8. Select NO. 28 SSH (Sub Sharpness) with ▲ or ▼ key. Adjust the data with + or – key for 10.
9. Select NO. 29 OPT (Option 1) with ▲ or ▼ key. Adjust the data with + or – key for 100.
10. Select NO. 30 OP2 (Option 2) with ▲ or ▼ key. Adjust the data with + or – key for 0.
11. Select NO. 31 HR (OSD Display H-Position) with ▲ or ▼ key. Adjust the data with + or – key for 30.
12. Press the MENU key to turn off the Service Menu display.

1. IN THE SERVICE ADJUSTMENTS LIST (Continued)

PAGE 4

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See page 3 for Initial Bus Data Setup.)

NO.	TITLE	INITIAL REFERENCE DATA	INITIAL SETUP DATA	RANGE OF DATA	FUNCTION
01	HP	15	18*	0~31	Horizontal Phase (Horizontal Centering)
02	IAS	0	0	0, 1	IF AGC Switch 0: TV (Normal) 1: AV (IF Gain Minimum)
03	RAD	25	25	0~63	RF AGC Delay
04	PT	64	64	0~127	PLL Tuning
05	ADA	31	31	0~63	APC Detect Adjust
06	CD	0	0	0, 1	C-Diff
07	VS	32	32	0~63	Vertical Size
08	RB	0	0	0~255	Red Bias
09	GB	0	0	0~255	Green Bias
10	BB	0	0	0~255	Blue Bias
11	RD	60	60	0~127	Red Drive
12	BD	60	60	0~127	Blue Drive
13	TDS	0	1*	0, 1	Trap & D (B.P.F.) Switch 0: OFF 1: ON
14	AF	0	0	0, 1	Auto Flesh 0: OFF 1: ON
15	BS	0	0	0, 1	Black Stretch 1: OFF 0: ON
16	VL	4	4	0~7	Video Level
17	FL	15	15	0~31	FM Level
18	NIS	1	1	0, 1	N/I Switch (Black Noise Inverter) 1: OFF 0: ON
19	ABL	1	1	0, 1	ABL Defeat 0: OFF 1: ON
20	WP	1	1	0, 1	White Peak Limiter 1: OFF 0: ON
21	GD	7	7	0~15	Green Drive Reduction
22	VC	0	0	0~7	Vert. Comp
23	VD	32	32	0~63	Vert. DC
24	AG	3	0*	0~3	AFC Gain 00: Auto 01: High Gain 10: Low Gain 11: Non-Gate
25	SB	32	32	0~63	Sub-Brightness
26	SCO	10	7*	0~31	Sub-Color
27	STI	14	21*	0~31	Sub-Tint
28	SSH	8	10*	0~15	Sub-Sharpness
29	OPT	32	100*	0~255	Option 1 (See Note 1 page 5.)
30	OP2	64	0*	0~255	Option 2 (See Note 2 page 5.)
31	HR	43	30*	0~63	H-Position (OSD H-Position)
32	ATT	15	15	0~15	Attenuation
33	STE	N/A	N/A	N/A	N/A
34	FIL	N/A	N/A	N/A	N/A
35	WDB	32	32	0~32	Wide Band
36	SPC	32	32	0~32	Spectral
37	SPV	N/A	N/A	N/A	N/A
38	SBO	5	5	0~255	Sub Bright Offset
39	PCO	N/A	N/A	N/A	N/A
40	PTI	N/A	N/A	N/A	N/A
41	PUV	N/A	N/A	N/A	N/A
42	PDV	N/A	N/A	N/A	N/A
43	PLH	N/A	N/A	N/A	N/A
44	PRH	N/A	N/A	N/A	N/A
45	PCN	N/A	N/A	N/A	N/A
46	PBS	N/A	N/A	N/A	N/A
47	DRV	—	—	0~127	Red drive Adjustment (See Note 3 page 5.)
		—	—	0~127	Blue Drive Adjustment (See Note 3 page 5.)
48	—	0	0	0~255	Red Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Green Bias Adjustment (See Note 4 page 5.)
	—	0	0	0~255	Blue Bias Adjustment (See Note 4 page 5.)
60	R00	0	0	0~255	N/A
↓	↓	↓	↓	↓	↓
132	R72	0	0	0~255	N/A

2. IN THE PURITY AND CONVERGENCE ADJUSTMENTS LIST PAGE 10

PURITY ADJUSTMENT

1. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly. See Figure 1. Position the picture tube facing east or west. Demagnetize the picture tube and receiver using an external degaussing coil. Set receiver to Service Menu NO. 48 (no vertical sweep) while degaussing.

2. Place the yoke on tube neck fully against glass.

2A. Place the CPM on the tube neck aligning the center of the purity magnet tabs (2 pole) over center of Focus Gap (G3 & G4). See Figure 2.

3. Connect a color bar generator to the antenna terminal. Switch the generator to a white field. Move yoke backward on the neck until a uniform white field is obtained.

4. Allow 30 minutes warm up on a blank white field (high intensity grayscale).

Note: If white field cannot be obtained, check Grayscale Adjustments on page 6.

5. Set the picture controls to the Auto levels. Select a green raster, either with the signal generator or by adjusting the bias controls. If a signal generator is used for this step, Skip to Step 10. If the bias controls will be used, go to step 6.

6. Adjust Service Menu NO. 08 RB (R-Bias), NO. 09 GB (G-Bias), and NO. 10 BB (B-Bias) data to 0 each.

7. Select Service Menu NO. 48 (no vertical sweep).

8. Adjust the screen control counterclockwise until the horizontal scan lines is no longer visible.

9. Select Service Menu NO. 09 GB (G-Bias) and raise the data to produce green raster. If retrace lines appear, reduce screen control slightly.

10. Pull yoke back on the tube neck to obtain three-color raster (blue, green and red).

11. Adjust the angle between the two purity magnet tabs to center the vertical green belt in the picture tube. Do not rotate tabs. See Figure 3.

12. Slowly slide the deflection yoke forward until a uniform green screen is obtained.

13. Check the purity of the red and blue screens for uniformity. Turn off other colors to check (use bias controls) or use generator. If necessary, readjust the yoke position until all screens are pure.

14. If bias controls and screen control were used to set purity, reset Grayscale and Brightness Level. Refer to Grayscale Adjustment on page 6 and Brightness Level Adjustment on page 7.

15. Confirm that the yoke is not tilted. Tighten the yoke mounting screw. Adjust convergence next.

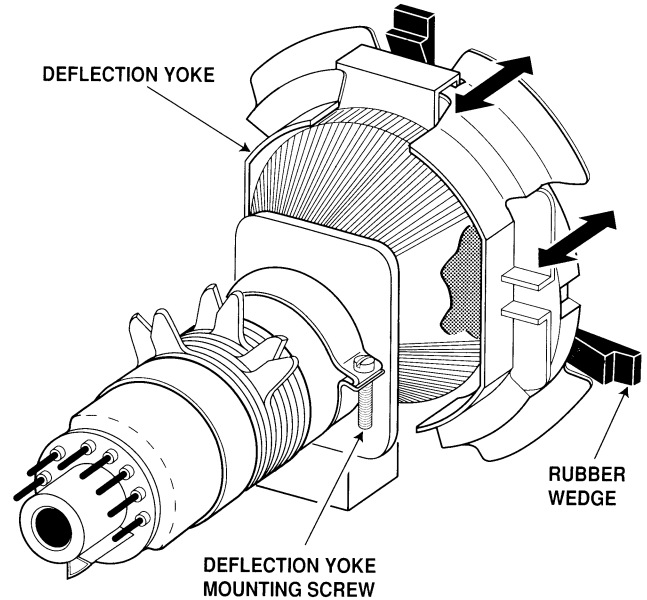


Figure 1. Deflection Yoke Movement

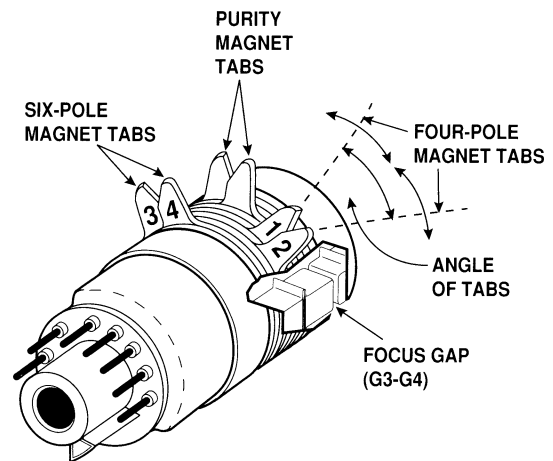


Figure 2. Purity and Convergence Magnets

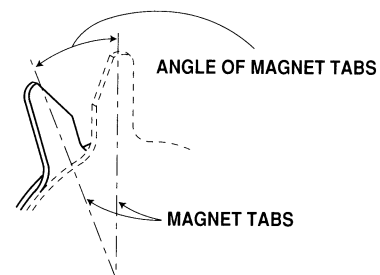


Figure 3. Adjusting Magnet

3. IN THE CHASSIS ELECTRICAL PARTS LIST

The reason for change.

- A : Misprint B : Quality Reliability C : Standardization
 D : Design E : Add as a possible sub F : Schematic location change
 G : Purchasing Request

Page & Section	Schematic Location		Part No.	Description	Q'ty	Interchangeability	Reason
Page 14, Chassis Electrical Parts List	★C411	Old	403 353 4303 404 077 4303	MT-POLYPRO 7100P H 1.5K MT-POLYPRO 7100P H 1.5K	1	NO	D
		New	403 343 8304 404 077 4709	MT-POLYPRO 8000P H 1.5K MT-POLYPRO 8000P H 1.5K	1	NO	
	★C417	Old	403 346 7304 404 081 2906	MT-POLYPRO 0.36U J 250V MT-POLYPRO 0.36U M 200V	1	NO	D
		New	403 346 7007 404 081 2500	MT-POLYPRO 0.24U J 250V MT-POLYPRO 0.24U M 200V	1	NO	
	C628	Old	404 080 0606	ELECT 100U M 160V	1	NO	D
		New	404 073 9005	ELECT 220U M 160V	1	NO	
Page 16, Chassis Electrical Parts List	★L902	Old	610 238 2846 610 238 2853	DEFLECTION YOKE DEFLECTION YOKE	1	NO	D
		New	645 026 3927	YOKE, DEFLECTION	1	NO	
Page 19, Chassis Electrical Parts List	★R497	Old	401 064 5701	OXIDE-MT 1.8 JA 2W	1	NO	D
		New	401 066 3002	OXIDE-MT 2.2 JA 2W	1	NO	
	R504	Old	401 026 9907	CARBON 4.7K JA 1/6W	1	NO	D
		New	401 027 2600	CARBON 5.6K JA 1/6W	1	NO	
Page 20, Chassis Electrical Parts List	A001	Old	610 282 6500	ASSY, PWB, MAIN	1	NO	D
		New	610 281 6839	ASSY, PWB, MAIN		NO	
	★Q901	Old	413 007 6201 413 007 7901 414 009 2703	CRT A48AAB37X CRT A48AAB37X CRT A48AGD12X	1	NO	D
		New	414 009 3205	CRT A48KRD82X(DT)	1	NO	
—	Q901C	Old		NOT USED		NO	D
		New	610 217 7794	CG PURITY MAGNET	1	NO	

For parts or service contact

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 Chatsworth, CA 91311 (U.S.A.)
 300 Applewood Crescent,
 Concord, Ontario L4K 5C7 (CANADA)